

**US Army Corps
of Engineers**
Baltimore District

Notice of Availability

Assateague Island Public Law 84-99 Emergency Response Action Worcester County, Maryland

ALL INTERESTED PARTIES:

In accordance with the National Environmental Policy Act (NEPA) and Section 404 of the Clean Water Act, the U.S. Army Corps of Engineers, Baltimore District, is conducting a public review of the Environmental Assessment (EA) for the proposed actions to undertake emergency repairs to the northern end of Assateague Island under the authority of Public Law 84-99.

Several storms in January and February 1998 flooded and severely eroded the northern end of Assateague Island National Seashore, creating an extremely low area 1.5 miles long about 3.2 to 4.8 miles south of the Ocean City Inlet. In this area, the island has lost up to 5 feet of elevation since mid-January, allowing overwash during spring high tides. Low beach elevations have increased the danger of a breach to this critical natural habitat area during future storms; such a breach would further expose both the National Seashore and the back bay areas to additional environmental and economic damages.

The proposed plan is to restore the low level berm on the island to its pre-storm (mid-January 1998) condition. The plan includes dredging up to 320,000 cubic yards of material from the Great Gull Bank shoal 3 to 4 miles off Assateague Island and placing it on the island creating a 100-foot wide, 8400-foot long berm, at an elevation of 8.0 feet NGVD with 1-on-10 side slopes. A map showing the location of the berm is attached. Construction is scheduled for this summer.

Previously, the Corps of Engineers and its partners had developed a short-term restoration plan for Assateague Island. A draft feasibility report and Environmental Impact Statement (EIS) on the short-term plan were issued for review and comment on May 16, 1997. This draft report and EIS are currently being finalized by the Corps of Engineers. Comments received during the public review period from May 16, 1997 to June 30, 1997 have been addressed. No major objections to implementing the short-term plan were raised.

Based on comments received on the short-term plan, the only major concern with the proposed emergency plan is the timing of the construction and the potential impact on the Piping Plover during its nesting season. All other impacts should be similar between the two plans, since the proposed emergency plan discussed above falls within the footprint of the short-term plan, and the same borrow source, Great Gull Bank, is being used. The Corps is working with and will continue to work with the National Park Service and the U.S. Fish and Wildlife Service to determine ways to avoid or minimize impacts to the threatened

Piping Plover during construction of the emergency project. The potential mitigation measures currently being discussed include hiring a plover monitor and using fencing to prevent Piping Plovers from straying into the construction site.

Individuals wishing to obtain a copy of or wanting more information about the EA or the draft Mitigated Finding of No Significant Impact may write to the U.S. Army Corps of Engineers, Baltimore District; ATTN: CENAB-PL (Mr. Peter Noy); P.O. Box 1715; Baltimore, Maryland 21203-1715, or Fax at (410) 962-4698 or e-mail to peter.m.noy@usace.army.mil. The EA is available, as an Adobe Acrobat file, on the internet at www.nab.usace.army.mil/PDF/assat.pdf. Comments on the EA will be accepted until 15 days after the date of this notice.

DR. JAMES F. JOHNSON
Chief, Planning Division

Date: _____

DRAFT

FINDING OF NO SIGNIFICANT IMPACT

ASSATEAGUE ISLAND EMERGENCY SAND PLACEMENT

WORCESTER COUNTY, MARYLAND

The Baltimore District, U.S. Army Corps of Engineers proposes an emergency beach nourishment of northern Assateague Island, Maryland to take place this summer. The project entails placing between 150,000 and 320,000 cubic yards of sand onto the island in a reach between 3.2 and 4.8 miles south of the inlet to repair storm damage resulting from Northeasters in January and February 1998. The sand will be dredged from Great Gull Bank, transported to the island, and shaped with bulldozers to restore pre-storm conditions. The emergency action will restore a measure of geologic integrity to the island, thereby reducing the the risk of damage to the mainland, the Assateague Island and back bay ecosystems, and the Sinepuxent Channel that could occur if a storm strikes the area. The project will include mitigation measures to protect Piping Plover (Federally-listed as Threatened) and several Federally-Threatened and Endangered species of sea turtles. The project is being undertaken in close coordination with the U.S. Fish and Wildlife Service, National Park Service, and National Marine Fisheries Service to ensure that these resources are protected.

This project is proposed under Public Law 84-99, Flood and Coastal Storm Emergencies (33 U.S.C. 701n), which provides authority for the Corps to provide emergency/disaster assistance.

An Environmental Assessment (EA) has been prepared that evaluates the potential environmental impacts associated with the proposed project. Potential impacts were assessed with regard to the physical, chemical, and biological characteristics of the aquatic and terrestrial ecosystem, endangered and threatened species, hazardous and toxic materials, aesthetics and recreation, cultural resources, and the general needs and welfare of the public. A review of the project in accordance with the Clean Water Act indicates that the project complies with the Environmental Protection Agency guidelines for discharge of fill material. A water quality certificate has been issued by the State of Maryland.

Upon reviewing the EA, I find that negative environmental impacts to rare species associated with implementation of the project will be effectively mitigated for with measures incorporated into dredging and construction equipment and methodologies. The project will produce a net benefit to Assateague Island. In light of this finding of no significant impacts, no Environmental Impact Statement is required.

Bruce A. Berwick, P.E.
Colonel, Corps of Engineers
District Engineer

DRAFT

FINDING OF NO SIGNIFICANT IMPACT

AND

ENVIRONMENTAL ASSESSMENT

ASSATEAGUE ISLAND EMERGENCY SAND PLACEMENT

WORCESTER COUNTY, MARYLAND

U.S. ARMY CORPS OF ENGINEERS, BALTIMORE DISTRICT

MAY 1998

TABLE OF CONTENTS

1	Purpose and Need of the Proposed Action	4
2	Other Federal Actions Affecting North Assateague Island	5
3	Project Description	6
4	Alternatives Considered	8
5	Affected Environment	10
6	Potential Environmental Impacts	24
7	Compliance with Environmental Statutes	35
8	Coordination	36
9	Conclusion	36
Annex A	Section 404 Evaluation	
Annex B	Compliance with Environmental Statutes	
Annex C	Coordination/Public Notice/Comments	
Annex D	State Water Quality Certification	

1 PURPOSE AND NEED OF THE PROPOSED ACTION

The proposed action is a beach nourishment that would repair storm damage to northern Assateague Island that resulted from severe Northeasters in January and February 1998. Those storms caused the loss of an estimated 300,000 cubic yards (229,000 cubic meters) of sand from the island and lowered island elevation along the berm from 8 feet to 3 feet (2.4 to 0.9 m) National Geodetic Vertical Datum (NGVD). In the three months that have elapsed since the Northeasters, approximately 150,000 cubic yards (115,000 cubic meters) of sand have been restored to the island by natural processes, and the island berm elevation has increased by as much as 2 feet (0.6 m) to about 5 feet (1.5 m) NGVD. However, it is not expected that full recovery of the island will take place prior to the next Northeaster season next fall (1998). If no repair work is undertaken it is expected that the next substantial storm, which will most likely be a Northeaster, will breach the island. A breach will further damage the geological integrity of the island, which is already threatened by sand starvation, and would place mainland shoreline properties at risk of increased erosion and flooding.

The beach nourishment would involve the placement and shaping of sand to restore pre-storm conditions; this will reduce the risk that the island will breach. If no further changes occur on the island prior to the proposed emergency action then 150,000 cubic yards (115,000 cubic meters) of sand will be placed. However, if storms cause loss of sand prior to the action then up to 320,000 cubic yards (245,000 cubic meters) of sand could potentially be required. The island is particularly vulnerable to breaching because it is sediment-starved as a consequence of an interruption of the longshore sand transport system caused by the Ocean City jetties. The jetty system unintentionally disrupted the natural movement of sand along the Atlantic coast, and greatly reduced the flow of sand reaching Assateague Island. Since jetty construction, Assateague Island has been deprived of 8.6 million cubic yards of sand; erosion of the island has been accelerated, and it no longer functions as an effective barrier island. Nearly level topography characterizes the area from 1.9 to 6.2 miles (3 to 10 km) south of the inlet and dunes are generally lacking. The area is frequently overwashed (as many as 20 times per year) and is largely devoid of vegetation. The area provides notable nesting habitat for several rare bird species, including Piping Plover (Federally listed as Threatened), Least Tern (State Listed as Threatened), and American Oystercatcher (State Listed as Rare/Watch List). The state-endangered white tiger beetle (*Cicindela dorsalis media*) also inhabits northern Assateague Island.

The authority for the Army Corps of Engineers to provide emergency/disaster assistance is Public Law 84-99, Flood and Coastal Storm Emergencies (33 U.S.C. 701n). Under this law, the Chief of Engineers, acting for the Secretary of the Army, is authorized to undertake activities including disaster preparedness, advance measures, emergency operations (Flood Response and Post Flood Response), rehabilitation of flood control works threatened or destroyed by flood, and shore protective works threatened or damaged by coastal storms. The Commander, USACE has approved and funded the

preparation of this Environmental Assessment (EA) under Flood Control and Coastal Emergencies code 520, Advance Measures Investigation.

This EA presents environmental data to determine whether any adverse impacts associated with the project are of a significant nature and warrant the preparation of an Environmental Impact Statement (EIS). If the impacts are determined not to be significant, a Finding of No Significant Impact (FONSI) will be prepared. If the potential impacts are determined to be significant, a Notice of Intent (NOI) will be published, leading to the preparation of an EIS. Included in this EA will be a discussion of the various alternatives evaluated and the reasons for their nonselection.

The Baltimore District has prepared several reports that provide additional information on the project area. These reports may be obtained upon request from the District. Recent reports from the Ocean City, Maryland, and Vicinity Water Resources Study include the *Draft Integrated Feasibility Report and Environmental Impact Statement* (February 1998); *Draft Integrated Interim Report and Environmental Impact Statement, Restoration of Assateague Island* (May 1997); and the *Reconnaissance Report* (May 1994) and the discussions therein are incorporated by reference.

2 OTHER FEDERAL ACTIONS AFFECTING NORTHERN ASSATEAGUE ISLAND

There are two other major ongoing actions in the project area which affect the movement of sand to Assateague Island.

Ocean City Harbor and Inlet: Jetties were constructed at the inlet in 1934 and 1935. The jetties have been strengthened and rehabilitated several times, most recently in 1984 and 1985. Ocean City harbor and the inlet navigation channel were completed in 1936. Dredging and maintenance of these improvements has continued on a periodic basis.

The Atlantic Coast of Maryland Shoreline Protection Project This project was designed to provide Ocean City with wave and erosion damage associated with a 100 year storm. The project involved the placement of sand on the beach, construction of vegetated dunes, and the construction of a bulkhead. Approximately 600,000 cubic yards of material will be placed on Ocean City beach in 1998 during dredging expected in May or June. This project will obtain sand from Borrow Area 9, an offshore shoal.

Two other major Federal actions have been proposed for Assateague Island that were evaluated in recent previous reports. These two proposed projects will, if approved and funded, occur in addition to the emergency action evaluated in this EA.

Short-Term Restoration of Assateague Island

A draft feasibility report and an Environmental Impact Statement were prepared by the Baltimore District, Corps of Engineers in May 1997 that provide details of this proposed

action. The proposed project will restore a measure of geological stability to Assateague by placing approximately 1.8 million cubic yards of sand dredged from Great Gull Bank, an offshore shoal, onto the island.

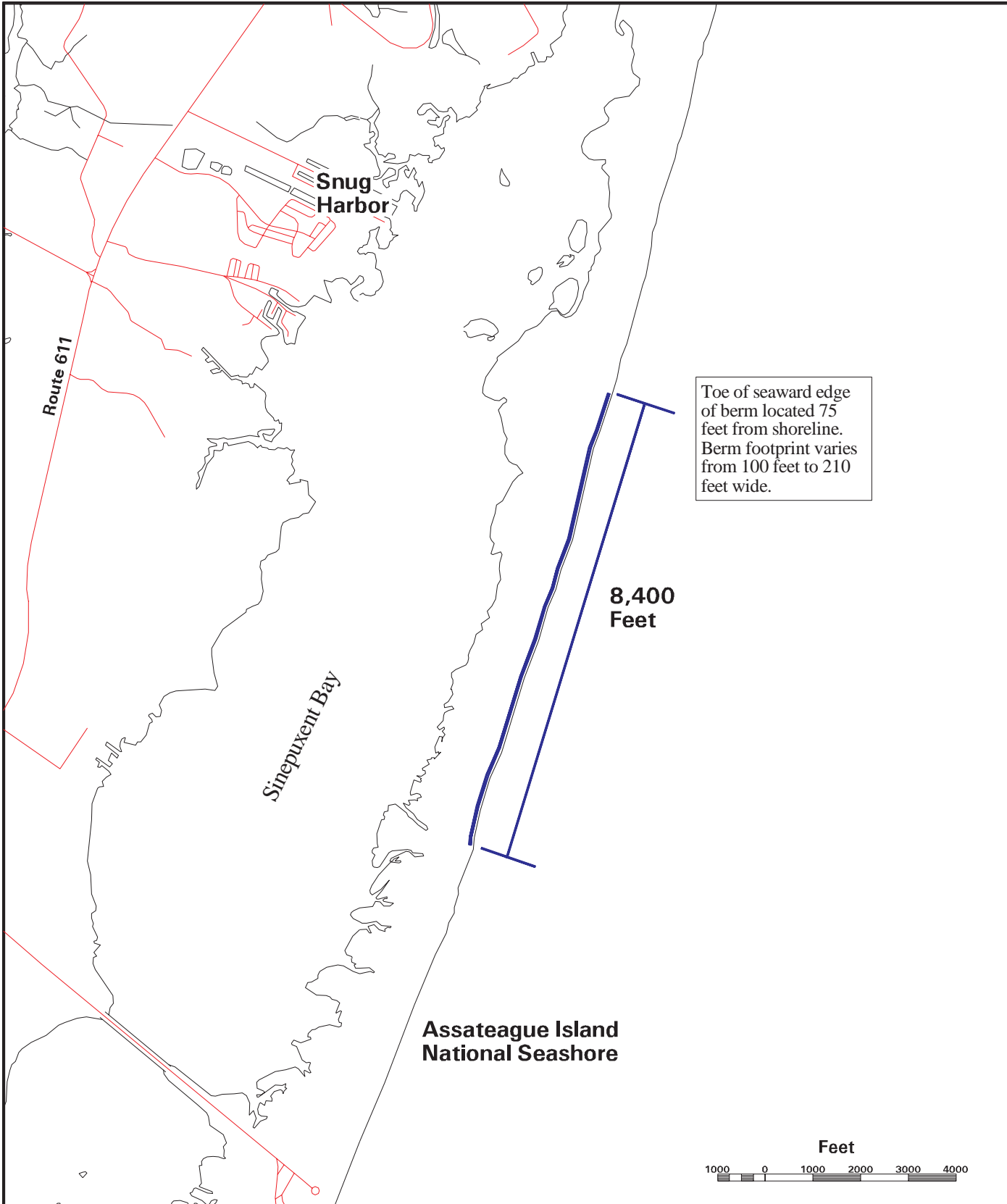
Assateague Island Long-Term Restoration

A draft feasibility report and an Environmental Impact Statement were prepared by the Baltimore District, Corps of Engineers in February 1998 that provide details of this proposed action. Approximately 189,000 cubic yards of sand will be bypassed annually to Assateague and placed in the surf zone. Sand will be dredged from the Ocean City updrift fillet, ebb shoal, navigational channels, and flood shoal. Dredging and placement of sand will be done once or twice each year in February/March and/or October/November. The long-term recommended plan has a project life of 25 years. Detailed monitoring will annually assess the impacts of dredging at each borrow site as well as to Assateague Island. The results of the monitoring program will be used to plan dredging to strategically avoid upsetting inlet hydrodynamics.

3. PROJECT DESCRIPTION

A beach nourishment action will be undertaken to repair storm damages to northern Assateague Island along a 1.6 mile (2.6 km) reach of the island located from 3.2 to 4.8 miles (5.1 to 7.7 km) south of the inlet (Figure 1). Sand for the repairs will be dredged from Great Gull Bank, an offshore shoal located several miles (km) off northern Assateague Island (Figure 2). Construction is expected to require approximately 150,000 cubic yards (115,000 cubic meters) of sand. However, if additional losses occur prior to construction, such as from a severe storm, then up to 320,000 cubic yards (245,000 cubic meters) of sand may be required.

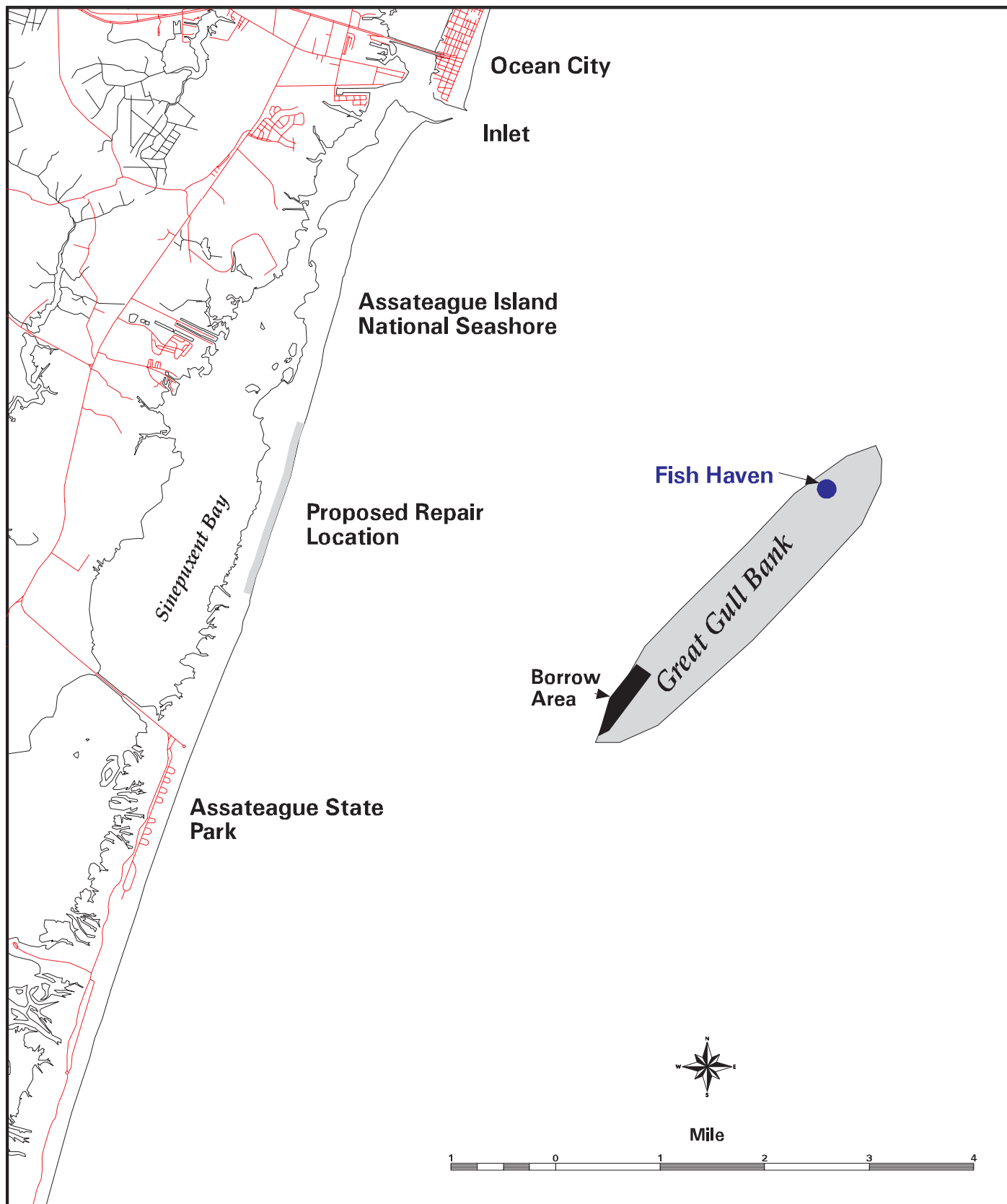
It is expected that a hopper dredge or cutterhead dredge will be used to dredge sand for the emergency action. If a hopper dredge is used, sand will be dredged off Great Gull Bank and pumped into the vessel. The hopper dredge will then travel to a pump-out point located about 600 m (2000 feet) offshore of Assateague Island where a barge with a booster pump will be waiting. The barge mounted booster pump will pump the sand in a slurry from the dredge to the beach through a steel pipeline. Pumping of sand will be done for a maximum distance of up to 1,220 m (4,000 feet) north or south of where the pipeline crosses up onto the beach. Beach nourishment may be completed in two sections. If necessary, the barge and booster pump would be moved to a new pump out point to continue the project, and an additional pump out point will be established. The pipeline will lie on the seafloor oriented perpendicularly to the shoreline. The hopper dredge will then return to the borrow area and resume dredging. Between 80 and 175 transits from the borrow area to the pump-out point will be made by the hopper dredge, depending on whether the volume is closer to the minimum or the maximum sand volume that is expected to be required (150,000 and 320,000 cubic yards [115,000 and 245,000 cubic meters respectively]).



US Army Corps
of Engineers
Baltimore District

Assateague Island Breach Contingency Plan

Proposed Repair Location



**US Army Corps
of Engineers**
Baltimore District

Assateague Island Breach Contingency Plan

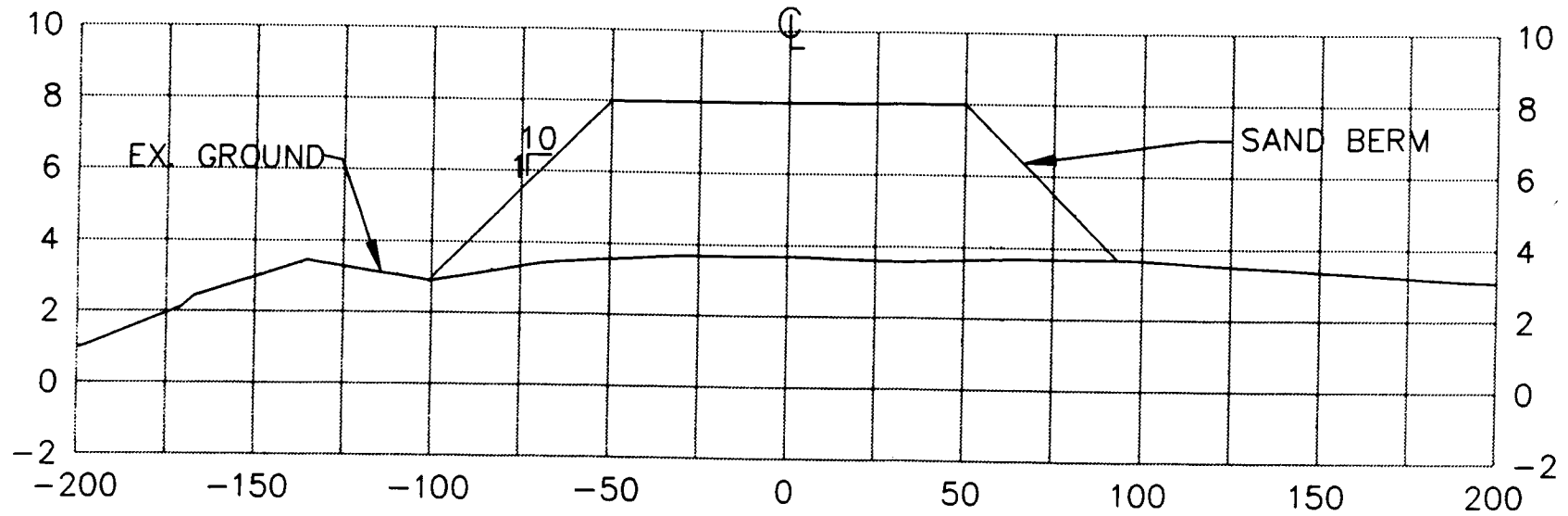
Locator Map

If a cutterhead dredge is used, sand will be pumped from the borrow area through a pipeline on the sea floor and up on to the beach. If required, a floating booster pump would be added to the pipeline. The ideal set-up for placing the sand on the beach with the cutterhead dredge would be to work from North to South. Pipeline would be added to the discharge end as needed to proceed along the beach.

Bulldozers will then be used to create areas to trap and shape sand as it exits the pipeline to form the berm. To restore the island to pre-storm elevations, a trapezoidal berm with a width of 245 feet (75 m), a crest elevation of 8 feet (2.4 m) NGVD, and one on ten side slopes is recommended to be constructed beginning approximately 75 feet landward of the existing mean high water (MHW) shoreline (Figures 2 and 3). This feature would extend approximately 8,400 feet along the shoreline from 3.2 to 4.8 miles (5.1 to 7.7 km) south of the Ocean City Inlet. The berm would lie within the footprint of the proposed short-term project (described in the May 1997 Assateague Draft EIS) which is anticipated to be completed in 1999. Between 12 and 15 round-trips by four wheel vehicles will occur on a daily basis between the placement area and Assateague Island State Park to transport personnel and possibly fuel. Lights will be set up in the placement area so that work can proceed around the clock; a fuel tank and porta-john will also be set up in the placement area.

An important component of the project will be mitigation measures undertaken to protect Piping Plover nests and flightless chicks. Flightless chicks are likely to forage in the proposed project until late August (Figure 4). Nests may be present in the area through the end of July. Of primary concern for plovers is the need to protect nests from disturbance and prevent flightless pedestrian chicks from being crushed during construction. If construction is done when flightless plover chicks are in the project area then one mitigation measure being considered is to exclude chicks from the construction area. In this case, prior to construction flightless young birds will be ushered out of the project area by plover monitors and a silt fence corral will be erected to prevent chick reentry. Equipment would then be deployed and operated within the confines of the corral. Vehicles transiting to and from the construction site across Assateague Island will be kept to a minimum and will be accompanied by a plover monitor. All vehicles will travel below the mean high water line on the ocean beach. A plover monitor will remain on watch to ensure that the fence integrity is maintained and that no chicks enter the area. Depending on the value of the site as foraging habitat for plovers (which will be determined by June) it might be necessary to construct the corral and the project sequentially proceeding either from north to south or from south to north to maintain availability of foraging habitat for plover. At this time it is expected that there will be no nests in the project area during the construction period. If plover nests are located in the project area then the construction method and time of construction will be reevaluated in coordination with the U.S. Fish and Wildlife Service. Potential measures to mitigate impacts to nests include implementation of a buffer zone around each nest or potentially postponing project construction until substantial risks to plover can be avoided.

ASSATEAGUE ISLAND EMERGENCY BERM



VERT. SCALE: 1 IN.=5 FT.

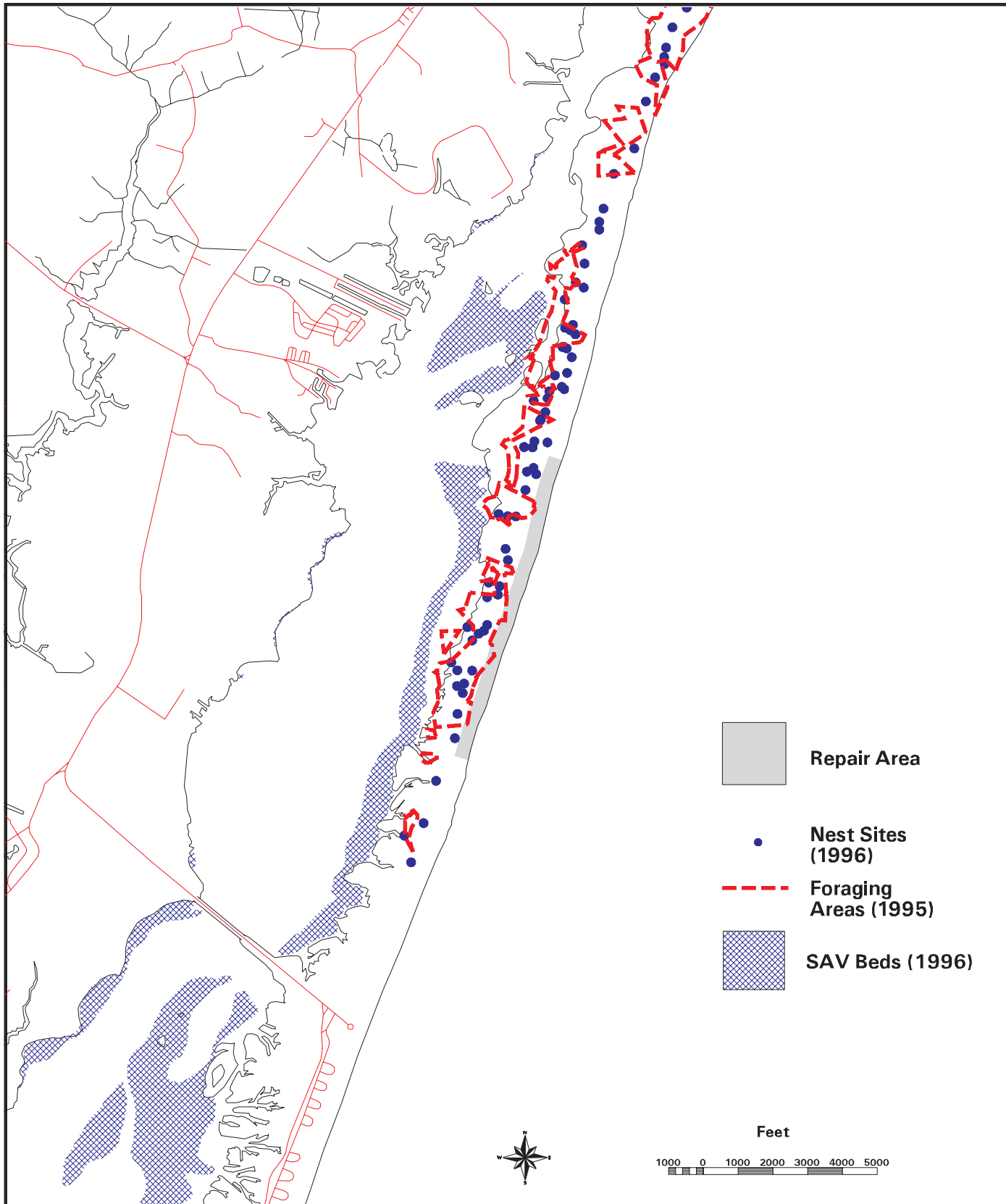


HOR. SCALE: 1 IN.=50 FT.



Note exaggeration of vertical scale.

Figure 3



**US Army Corps
of Engineers**
Baltimore District

Assateague Island Breach Contingency Plan

Piping Plover Nesting and Foraging Areas

Work will take place in summer 1998 and will take several weeks to complete. Inclement weather or equipment problems may increase the amount of time required. Additional work delays could potentially occur due to stoppage to protect Piping Plover, or if incidental take of sea turtles is exceeded (these issues are discussed at greater length in Section 6.3).

4.0 ALTERNATIVES CONSIDERED

Three alternative plans were identified to respond to loss of sand on Assateague resulting from the January and February 1998 storms. They are (1) No Action, (2) Emergency replenishment of sand to Assateague Island, and (3) Expedited Implementation of the Short-term Restoration, followed by implementation of the Long-Term Restoration. These plans were evaluated and are discussed below. Previous Corps' studies for the proposed Short-term Restoration project identified Great Gull Bank as the best source of sand for Assateague Island beach nourishment because of the large volume of sand it contains, and the compatibility of the sand to the beach sand on Assateague. Other potential borrow sites could destabilize the inlet or incur unacceptable environmental impacts. Because of the need to expedite implementation of this project, and the engineering and environmental suitability of this site as a source of sand, Great Gull Bank is proposed to be used as the source of sand for the Short-term Restoration Project.

4.1 NO ACTION ALTERNATIVE

The no-Federal action, "without-project" condition represents the base from which all changes are measured. The no-action alternative would postpone the work until some future date or abandon the project altogether, and therefore avoid or postpone adverse impacts that would be associated with the construction operations. If nothing is done, some continued recovery of the sand will occur since fair weather conditions of the late spring and summer generally build the beach. However, it is believed that sand recovery will be insufficient to restore the geologic integrity of the island prior to the next storm season. As a consequence of this loss of geologic integrity, it is expected that the next substantial storm will breach the island within the proposed emergency project area, forming a new inlet(s). The island's function as a healthy barrier island would be further compromised. This breach would likely occur during the next Northeaster storm season which will begin in fall of 1998. It is possible that a hurricane could breach the island in summer 1998, but serious hurricanes in the study area are an infrequent occurrence. It is important to note however, that a high degree of uncertainty surrounds the prediction of when the island will breach, the two Northeasters which brought about the current emergency situation failed to breach the island, in spite of expectations that the island would breach. If no major storms occur over the next year, then full or nearly full island recovery could occur.

It is assumed that the breach will occur in a form similar to the March 1962 breach, which was 1870 feet wide, and the new inlet will remain somewhat stable in its width in the

months immediately following its creation. The 1962 breach and was subsequently filled by the Corps of Engineers. If a breach occurs prior to the implementation of the Short and Long-term Restoration projects, tens to hundreds of acres of barrier island habitat in the vicinity of the new inlet(s) could be converted to marine habitat. It is predicted that if a breach occurred, Sinepuxent Bay would be constricted but would not close completely; the tidal prism would most likely serve to maintain a minimal waterway between the Ocean City Inlet and Chincoteague Bay. However, navigation would be difficult without repeated channel maintenance.

The no action alternative does not rule out the possibility that a breach could be closed after it occurs as a separate emergency action. Material to close the breach could be dredged from one or more of the borrow source areas identified for the Short- and Long-term Restoration of Assateague Island. If a breach is not filled as an emergency action, then implementation of the proposed Short-term Restoration Project will likely require filling in the new inlet. Following implementation of the proposed Assateague Island Long-term Sand Management plan, it is believed that the risk of future breaches would be substantially reduced.

A breach would cause substantial changes to the coastal bays ecosystem. Tens to hundreds of acres of shallow water habitat in Sinepuxent Bay adjacent to the new inlet would be filled by a combination of inlet spits, tidal flood shoal islands, and overwash deposits in the lee of Assateague. Sinepuxent Bay could decrease in size by tens to hundreds of acres, and lose as much as 10 percent of its area. There would be a loss of submerged aquatic vegetation (SAV) in Sinepuxent Bay immediately following the breach in the vicinity of the new inlet, probably in the tens of acres. However, over time new SAV beds would form in adjacent locations. There would be an increase in salinity of Sinepuxent Bay and Chincoteague Bay, probably by up to a few parts per thousand. There would also be an increase in the flushing rates of both bays, potentially improving water quality. The mainland shoreline directly behind the new inlet would experience higher rates of erosion, and tens of acres of mainland salt marsh could be destroyed. However, over time, new salt marshes would most likely form in adjacent areas.

A number of older communities located along MD Route 611, on the mainland shoreline directly behind Assateague Island, are susceptible to inundation from the effects of storm surge and would be vulnerable to increased shoreline erosion rates. Although these communities sustained very little damage during the January and February 1998 Northeasters, four mainland communities landward of Sinepuxent Bay incurred approximately \$3.2 million in damages from the January 1992 storm. Water levels would most likely increase 4.9 to 8.2 feet (1.5 to 2.5 m) directly behind the breach during a storm. The same communities that incurred \$3.2 million in damages are expected to incur at least an additional \$700,000 in damages from a breach of the northern section of Assateague Island during a storm similar to the January 1992 storm. This is due to the increased water level and wave action affecting the properties in the structures. Similar damages are expected if a breach remained open and an equivalent storm occurred. Any future development on the mainland behind Assateague Island should adhere to Flood

Insurance Administration regulations regarding coastal plain development, and minimal damage to future developments would be expected.

Currently, pedestrians may access the entirety of Assateague Island. However, if a breach were to occur 4 miles (6.4 km) south of the inlet, access to approximately 820 acres (330 ha) of the island would be limited to boats until the breach was repaired. The loss of these opportunities would result in a loss of 7,500 visitor-days on an annual basis. The monetary loss of this opportunity would be \$34,000 annually.

Impacts of a breach on Piping Plover and other rare species are unknown; rare species habitat quantity and quality could increase or decrease depending on the height and configuration of the post-breach islands. Within National Park Service lands, the extent of the island closed to public use for part of the year to protect beach-nesting colonial waterbirds is defined by the area that the birds utilize for this purpose. Therefore, if a breach occurs and the overwash zone continues to expand in area, the proportion of the island closed to human use during the Piping Plover nesting season will presumably increase in area.

This alternative was rejected because it would place the island at a high risk of breaching, which would further compromise its geologic integrity. This alternative would also pose risk to mainland property owners.

4.2 ALTERNATIVE #2 - EXPEDITED IMPLEMENTATION OF PROPOSED SHORT- TERM RESTORATION OF ASSATEAGUE ISLAND

As discussed in Section 2, the Baltimore District is currently recommending that the Short-term and Long-term Restoration Projects be implemented. The Short-term plan will mitigate for the past impacts of the jetties on Assateague Island, and the long-term plan will continue to mitigate for future impacts. Because of budgetary considerations, it is not possible to implement the proposed short-term restoration earlier than 1999. By this time the island will have been exposed to another storm season and it is likely that the island will breach. Impacts of a breach are discussed in Section 4.1. it is likely that the island will have breached.

4.3 ALTERNATIVE #3 - EMERGENCY PLACEMENT OF SAND ON ASSATEAGUE

The third alternative would place sand on Assateague Island to replace that lost in the Northeasters of January and February 1998. Sand would be placed this summer prior to the next Northeaster storm season. This alternative was selected since it was the only alternative which affords the opportunity to ward off a breach, thereby reducing the risk of damage to the mainland, the Assateague Island and back bay ecosystems, and the Sinepuxent Channel. In selecting this alternative it was recognized that great sensitivity would be required to protect the island and the surrounding area's ecological resources. Measures necessary to do so are discussed in the remainder of this document.

5.0 EXISTING CONDITIONS AND AFFECTED ENVIRONMENT

The study area includes northern Assateague Island from the Route 611 Bridge to the Ocean City Inlet, northern Sinepuxent Bay, and Great Gull Bank, an offshore shoal about 5 miles (8 km) east of Assateague Island. Assateague itself is undeveloped and is preserved as open space under the administration of the National Park Service, Fish and Wildlife Service, and the State of Maryland. Sinepuxent Bay is shallow except in close proximity to the inlet and navigation channels. Sinepuxent Bay is bordered by residential developments and salt marshes. Figure 1 shows a map of the area.

5.1 PHYSICAL ENVIRONMENT

5.1.1 Surficial Geology and Sedimentary Processes

Sediments consisting of gravel, silt, clay, sand, and shell underlie the entire study area. These sediments undergo erosion and deposition as a result of wind-driven waves and tidal currents. Over short periods of time, individual storm events play a large role in the movement of sediments. Over longer periods of time, factors such as rising sea level and cumulative impacts to the sediment transport system such as those caused by the construction of jetties at Ocean City Inlet and beach nourishment of Ocean City become increasingly important. Stabilization of the inlet with jetties reduced the volume of sediment delivered to Assateague Island from the north via the longshore transport system, and induced accelerated erosion and retreat of the northern end of the island. Island retreat has been most pronounced in the northernmost 4 miles (6.5 km), however accelerated retreat rates may extend to 8 miles (13 km) south of the jetties.

5.1.1.a Assateague Island Nearshore

Northern Assateague Island is sediment starved, and as a consequence, barrier flats, washover fans, and tidal flats are disproportionately represented at the expense of dunes and salt marsh that would otherwise occur. In areas such as Assateague Island where tidal range is 3 ft (1 m) or less and storm frequency is high, overwash would be a regular event even if stabilization had not occurred. On northern Assateague in the storm-damaged reach, overwash occurs at each spring tide as well as during storm events. Overwash frequently extends to the bayshore.

Prevailing waves produce a net southerly current along the Maryland shoreline. This current of water transports sand in a southerly direction in what is known as the longshore transport system. Prior to inlet stabilization, a constant flow of sediment was available to Assateague. Construction of the Ocean City jetties to stabilize the newly formed inlet in the 1930's interrupted the southerly flow of sediment and induced sediment starvation of Assateague. Because of disruption to the natural flow of sediment caused by the ebb

shoal, net longshore transport along the northernmost 3.9 miles (6.3 km) of the island is northerly. South of this point, net southerly flow of sediment resumes.

Other natural factors are at work that contribute to the destabilization of Assateague Island when considered over a long-term perspective. Along the U.S. east coast, barrier islands are generally migrating landward in response to rising sea-level. Sea level is currently rising at a relatively rapid rate—in excess of 1 foot (0.3 m) per 100 years – in Maryland. This rate of rise could increase substantially if predicted global warming occurs. Barrier islands can fail if the rate of sea-level rise increases too much relative to the supply of available sediment and the slope upon which the island is migrating. As a consequence of local physical environment conditions, the island was losing sediment volume even prior to jetty construction; however, the jetties greatly increased the rate of sediment loss.

5.1.1.b Great Gull Bank

Great Gull Bank is one of several shoals located offshore of the Maryland coastline. The shoal is located about 5 miles (8 km) east of Assateague Island in the Atlantic Ocean. The shoal is oblong in shape and is oriented southwest/northeast. It covers an area of approximately 1,980 acres (4,900 ha). Maximum length and width are about 9.6 miles (6 km) and 2.9 miles (1.8 km) respectively. The shoal contains 56 million yd³ (42.8 million m³) of sand of which about 29 million yd³ (22 million m³) is potentially useable for beach fill .

The dominant sediment type on the Atlantic Ocean seafloor in the study area is fine to coarse, well-sorted quartz sand. Sand contained in the offshore shoals is generally well-sorted, medium sand. Aside from the offshore shoals, sand deposits on the sea floor are generally too thin or of too fine a grain size to use for beach fill purposes.

New submarine shoals form over geologic time on the seaward side of the barrier islands and become isolated as sea level rises and the island retreats. Waves and currents continue to modify the shoals after their formation. As a result, the shoals are dynamic, and migrate at rates that can exceed 6 feet (2 to 120 m (6.5 to 400 feet) per year.

5.1.1.c Sinepuxent Bay

Bottom sediments generally become coarser in an easterly direction across the bay. Sand occurs adjacent to Assateague and in close proximity to the inlet. Deposits from the middle of the bay are silty, and a sand/silt mix occurs along the western shore. Sand is transported into the bay through the inlet by tidal processes and from Assateague Island by washover or wind.

5.1.2 Soils

Tidal Marsh-Coastal Beaches Association soils occur on the terrestrial environments of Assateague Island and along the mainland shoreline. These areas are predominantly level or nearly level and are subject to intermittent flooding by tidal water. Coastal beach soils consist largely of sand and typically have poor nutrient content and water-holding capacity. Tidal marsh soils consist of plant remains and mineral sediment; where exposed they are gray or black in color. These soils are saline to brackish.

5.1.3 Topography

5.1.3.a Assateague Island

Ocean waves and currents maintain the smooth ocean shoreline. Islands and lobes on the bayside of the Assateague Island mark the location of relict tidal inlets and pastwashover events. Assateague Island is naturally much narrower at its northern end than at its southern end. Over the island's 61-km (38 miles) length it ranges in width from about 270 m (900 feet) at the northern end to about 1.6 km (1 miles) near the Virginia border. This configuration appears to occur as a result of systematic distribution of offshore steepness and curvature, and resultant distribution of wave energy. Berm elevations on the island are controlled by tides and waves, and ranged from 2.3 to 2.8 m (8 feet to 9 feet) above the 1929 NGVD prior to the January and February 1998 storms. Accelerated retreat and erosion has almost completely decimated dunes from 3 km to 10 km south of the inlet on northern Assateague Island.

5.1.4 Bathymetry

5.1.4.a Assateague Island Nearshore

Water depths along Assateague Island increase gradually proceeding seaward and reach depths of 3 m (10 feet) MLW at approximately 125 to 150 m (410 to 500 feet) offshore.

5.1.4.b Great Gull Bank and Ocean Seafloor

Within the study area, water depths reach a maximum of about 23 m (75 feet) in the Atlantic Ocean, and shallow proceeding landward. The major bathymetric features of the seafloor are a pervasive topography of swales and oblong-shaped ridges (offshore shoals), which include Great Gull Bank. Water depths at Great Gull Bank range from 5.8 m (19 feet) on the crest to 9.2 m (30 feet) in adjacent waters.

5.1.4.c Sinepuxent Bay

Water depths in Sinepuxent Bay are generally very shallow, with an average depth of 0.7 m (2.3 feet). Nearly 95% of the bay is less than 1 m deep. The greatest water depths are found near the inlet and in the Sinepuxent Federal Channel.

5.1.5 Hydrology

The ocean and bay waters of the study area have a semidiurnal tide, which means two high and two low waters occur each day.

5.1.5.a Atlantic Ocean

The mean astronomical tidal range in the ocean waters of the study area is approximately 1 m (3.3 feet). The salinity ranges from about 30 to 33 parts per thousand (ppt). Ocean water temperatures generally reach a minimum of about 3° to 5°C (37° to 41°F) in late February or early March. Surface water temperatures in the ocean reach a maximum during August and early September of about 21°C (70° F), and rarely exceed 23°C (73° F), bottom waters at depth are somewhat cooler at this time by up to approximately 10°C (18° F).

Waves occur much more frequently from the southeast quadrant than they do from the northeast; however, the waves from the northeast tend to be higher. The predominate southerly littoral drift along this segment of coast is a result of waves from the northeast and east quadrant. The average measured wave height off Ocean City is 0.7 m (2.3 feet). Average wave heights vary seasonally: the lowest monthly average wave occurs in July and August; the maximum monthly average wave height occurs in December, January, and February. The largest measured wave was 4.4 m (14 feet); this occurred during the January 1992 storm.

5.1.5.b Sinepuxent Bay

The tidal range in the bay is dependent on proximity to the Ocean City Inlet. The mean neap and spring tide range is 1.1 m (3.6 feet) and 1.3 m (4.3 feet), respectively, at the Ocean City fishing pier. The tide attenuates behind Assateague Island proceeding away from the inlet. High salinities of 25 to 32 ppt prevail throughout Sinepuxent Bay. Salinity generally decreases with distance from the inlets. Water temperatures range from about 0°C (32°F) to 29°C (84°F) during the year. Near the inlet, tidal water movements produce strong currents; currents drop off rapidly moving away from the inlet. Shallow water depths promote thorough vertical mixing.

5.1.6 AIR QUALITY

Maryland is divided into six air quality control areas. The coastal bays and Worcester County are contained in the Eastern Shore area. Ambient air quality is determined by measuring the ambient pollutant concentrations of particulate matter, carbon monoxide, sulfur dioxide, nitrogen dioxide, lead, and ozone, and comparing the concentration to the corresponding standards as determined by the U.S. Environmental Protection Agency. Analysis of 1994 data from the monitoring station nearest to the coastal bays in Salisbury, Wicomico County, determined that the area is an attainment area for all criteria pollutants. However, because the project area is in an ozone transport region, it is regulated as a moderate ozone non-attainment area.

5.1.7 CLIMATE

Worcester County has a humid continental climate modified by its nearness to the Atlantic Ocean and Chesapeake Bay. Average annual precipitation at Ocean City is 124 cm (49 inches). Heavy precipitation occurs mostly in the warmer portion of the year from thunderstorm activity. The prevailing winds are from the west to northwest, except during the summer months, when they are southerly. Winds from the northeast, east, and southeast quadrants occur one-fifth of the time. Direct onshore winds can elevate nearshore waves and coastal water levels during storm events, increasing storm damages. Winds from the east and northeast tend to be of the highest magnitude. The average annual temperature at Ocean City is 14°C (57°F). Air temperatures over the coastal ocean typically run 1° to 3°C (5° to 10° F) cooler than temperatures on the coast in the warm weather months.

Most coastal storms causing erosion and other damage in the study area are northeasters. These storms can produce damaging storm waves for a duration of up to several days; they occur most frequently between December and April. Hurricanes and tropical storms also impact the study area, although less frequently. Ocean City has been hit by a number of major storms this century, including hurricanes in 1902 and 1933, the Ash Wednesday 1962 northeaster, the Halloween 1991 northeaster, the January 4, 1992 Northeaster, and the December 1992 (?) northeaster. The winds and waves during the 1933 hurricane were estimated at 160 km/hr (100 mph) and 6 m (20 feet), respectively. The 1962 northeaster caused the greatest storm damage to Ocean City: water covered Fenwick Island for two days at depths of up to 2.4 m (8 feet).

5.1.8 WATER QUALITY

5.1.8.a Atlantic Ocean

No significant water quality problems have been reported from the study area's ocean waters. As an indication of the generally high quality of these waters, the State of Maryland has designated all of its coastal waters to the 3-mile limit as Use II, shellfish harvesting waters.

5.1.8.b Sinepuxent Bay

The bay is regularly flushed by ocean waters, and water quality is considered good. There are no major point source discharge locations.

5.1.9 Noise

Assateague Island is undeveloped and is preserved as open space, and Great Gull Bank is an open water area several miles (km) from shore. Noise pollution occurs in the area as a result of recreational activities in the warm weather months from jetskiis and boat

engines. Noise is of environmental concern on Assateague Island during the summer because it can potentially disrupt wildlife behaviors.

5.2 BIOLOGICAL RESOURCES

5.2.1 Plant Communities

5.2.1.a Submerged Aquatic Vegetation (SAV)

Two species of SAV occur in Sinepuxent Bay: eelgrass (*Zostera marina*), which predominates in the deeper subtidal areas greater than 2 feet (0.6 m); and widgeon grass (*Ruppia maritima*), which predominates in shallower subtidal areas to mean low water (MLW). SAV provides a critical food source and nursery ground within the aquatic community for many estuarine organisms. SAV is abundant in Sinepuxent Bay along the western shore of Assateague Island (Figure 4).

5.2.1.b Wetlands

Salt marsh occurs on the mainland fringe of Sinepuxent Bay, and locally on the bayside of northern Assateague Island. Frequent overwash disturbances inhibit salt marsh development on northern Assateague. Non-vegetated or sparsely vegetated wetland flats occur on the bayside and island interior within the northern end of the island from 1.9 to 6.2 miles (3 to 10 km) south of the inlet. These unvegetated wetland flats provide habitat for invertebrate species which in turn provide food for shorebirds and waterbirds.

5.2.1.c Upland Habitats

Assateague Island Upland

Much of the northern end of Assateague from 1.9 to 6.2 miles (3 to 10 km) south of the inlet is unvegetated due to the high frequency of overwash events; however, dune grassland vegetation is sporadically represented in the area. Shrub thicket occurs in the northernmost 2.5 km of the island and south of 10 km. The island's famous ponies feed on and have had a substantial impact on island vegetation.

5.2.2 Benthos

Benthos are bottom-dwelling organisms of aquatic ecosystems. Benthic organisms in the study area are typically widely distributed and are only rarely limited in occurrence to a specific habitat type or location. Benthic populations have a high degree of natural population variability from year to year.

5.2.2.a Assateague Island

Mollusk species found in the subtidal zone of the outer beach on Assateague Island include whelks (*Busycon* spp.) and surf clam (*Spisula solidissima*). Crabs likely to be found in the subtidal zone of the outer beach include lady crab (*Ovalipes ocellatus*) and horseshoe crab (*Limulus polyphemus*).

The nearshore benthic communities are dominated by crustaceans such as mole crab (*Emerita talpoida*) and bay possum shrimp (*Neomysis americana*). Mole crab is also common in the intertidal zone. Common species of the upper beach include ghost crab (*Ocypode albicans*) and beach fleas (*Talorchestia* spp.).

5.2.2.b Great Gull Bank

The most common species of the offshore shoals in terms of frequency of occurrence are haustoriid amphipods, isopods, bivalves, and polychaete worms. Benthic megafauna species occurring on the offshore shoals and adjacent seafloor include lobed moon snails (*Polinices duplicatus*), whelks (*Busycon* spp.), starfish, and various crabs and shrimp. Important commercial species include surf clam (*Spisula solidissima*), whelks/conchs, and horseshoe crabs (*Limulus polyphemus*). The offshore shoals tend to possess lower numbers of benthic organisms, species, and biomass in relatively shallow areas 19 to 25 feet (5.8 to 7.6 m) than in adjacent deeper intershoal areas 23 to 31 feet (7.0 to 9.4 m). Swales adjacent to the shoals typically contain higher macroinvertebrate abundance, species richness, and biomass than do shoal ridges or flanks.

5.2.2.c Sinepuxent Bay

The coastal bays provide almost optimal hard-shell clam (*Mercenaria mercenaria*) habitat. Ribbed mussel (*Geukensia demissa*) dominates the intertidal zones. Hard-shell clamming yields are high and reliable for both commercial and recreational activities. Small and sporadic yields of soft-shell clam (*Mya arenaria*) also occur in the bays. Blue crab (*Callinectes sapidus*) are caught commercially in the coastal bays. The entire bay shore of Assateague Island in the study area is utilized by recreational fishermen, clambers, and crabbers. Commercial fishing activity is concentrated along the Sinepuxent Channel south of 3 miles (4.8 km) south of the inlet.

5.2.3 Nekton

Nekton are organisms that possess the ability to swim. Nekton include finfish that are caught by commercial and recreational fishermen. A discussion of marine mammals occurring in the study area is included in sections 5.2.4 and 5.3.

5.2.3.a Assateague Island

Bony fish likely to be found in the nearshore ocean waters of Assateague Island include weakfish (*Cynoscion regalis*), bluefish (*Pomatomus saltatrix*), striped bass (*Morone saxatilis*), northern puffer (*Sphaeroides maculatus*), porcupine fish (*Diodon hystrix*),

striped burrfish (*Chilomycterus schoepfi*), and common trunkfish (*Lactophrys trigonis*). Cartilaginous fishes likely to be found in nearshore include spiny dogfish (*Squalus acanthias*), little skate (*Raja erinacea*), barndoor skate (*Raja laevis*), and bluntnose stingray (*Dasyatis sayi*).

5.2.3.b Great Gull Bank

A wide variety of finfish are present in the ocean waters of the study area, but most of the fishes in the coastal area are seasonal migrants. Winter is a time of low abundance, as most species leave the area for warmer waters offshore and southward. Spring brings a progressive influx of species that reach a peak in the fall.

There is substantial commercial fishing activity in the waters of the Atlantic Ocean. Important species caught include summer flounder (*Paralichthys dentatus*), dogfish (*Squalus acanthias* and *Mustelus canis*), weakfish, and black sea bass (*Centropristis striata*). Substantial recreational fishing also takes place in the vicinity of the shoals and fish havens. Commonly caught recreational species include sea bass (*Tautoga onitis*), and triggerfish (*Balistes capriscus*). It appears that some fish species are attracted to the elevated bottom profile and edges of the shoals. The fish havens benefit and attract structure-oriented species.

5.2.3.c Sinepuxent Bay

The coastal bays have high habitat value as nursery areas for finfish, including many species that are important commercially and recreationally. These include some tidal and estuarine residents, however, the majority are marine migrants. Juvenile finfish abundance is typically low in the main channels. Within the coastal bays, recreationally and commercially sized individuals are typically found in the channels.

5.2.4 Mammals

Consideration of endangered, threatened, and rare mammal species is included in Section 5.3.

5.2.4.a Assateague Island

Fifteen species of mammals occur within the terrestrial habitats on Assateague. Mammal diversity and density are limited on the northern end of Assateague Island because of the lack of food, cover, and freshwater.

5.2.4.b Great Gull Bank

Several species of marine mammals may occur in the vicinity of the offshore shoals, although the bottlenose dolphin (*Tursiops truncatus*) is the only common one. Several other species of dolphin, porpoise, seal, and whale are infrequent visitors to the area.

5.2.5. Birds

This section includes only species that are not considered rare, information on rare species can be found in Section 4.5.

5.2.5.a Assateague Island

The open beaches and intertidal habitats of Assateague Island provide nesting and foraging habitat for shorebirds. Colonial waterbirds breed on Assateague Island. Additional discussion on colonial waterbirds is included in Section 5.3 “Rare, Threatened, and Endangered Species.”

5.2.5.b Great Gull Bank

A number of bird species may be found feeding and/or resting in the waters in the vicinity of the offshore shoals. These include shorebirds such as gulls, terns, scoters, Oldsquaw, and loons, as well as more open ocean species such as Gannet, Black-legged Kittiwake, storm petrel, and shearwater.

5.2.6 Reptiles and Amphibians

Consideration of endangered, threatened, and rare reptile and amphibian species is included in Section 5.3.

5.2.6.a Assateague Island

Assateague Island supports 23 species of amphibians and reptiles. Habitat quality and quantity for terrestrial, wetland, and freshwater aquatic reptiles and amphibians on the northern end of Assateague are limited because of the lack of vegetation and habitat diversity.

5.3 RARE, THREATENED, AND ENDANGERED SPECIES

Rare plants and animals occurring on northern Assateague Island and in the Atlantic Ocean waters of the study area are included in Table 1.

5.3.1 Plants

Sea beach amaranth (*Amaranthus pumilus*), federally-listed as threatened, formerly occurred on Assateague Island. This plant has not been seen on the island since the 1960's, and is thought to be extirpated from the state. The state of Maryland is currently investigating reintroducing this species to the island. Biological Assessments were prepared for the Short- and Long-term Restoration reports which include consideration of impacts to this species. Six state-rare plant species were recently documented to occur on the north end. At this writing, it is expected that these species are absent from the

Table 1

	Common Name	Scientific Name	Federal Status	State Status 1	Occurrence
Plants					
	Seabeach Amaranth	Amaranthus pumilus	Threatened	Extirpated	Historically occurred on Assateague Island
	Seaside Knotweed	Polygonum glaucum		Endangered	Occurs within and south of State Park
	Whorled Nutrush	Scleria verticillata		Endangered	
	Saltmarsh Spikerush	Eleocharis halophila		Endangered	
	Sea-purslane	Sesuvium maritimum		Endangered	
	Meadow Lovegrass	Eragrostis refracta		Threatened	
	Hairy Fimbristylis	Fimbristylis puberula		Uncertain	
Insects					
	White Tiger Beetle	Cicindela dorsalis media		Endangered	Nest on Assateague Island in project area
Birds					
	Piping Plover	Charadrius melodus	Threatened	Endangered	Nest on Assateague Island in project area
	Least Tern	Sterna antillarum		Threatened	Nest on Assateague Island in project area
	Roseate Tern	Sterna dougallii	Endangered	Extirpated	Transient, may have historically nested in the project area
	American Oystercatcher	Haematopus palliatus		Rare/Watch List	Nest on Assateague Island in project area
Sea Turtles					
	Kemp's Ridley	Lepidochelys kempii	Endangered	Endangered	Transient
	Leatherback	Dermochelys coriacea	Endangered	Endangered	Transient
	Green Turtle	Chelonia mydas	Threatened	Threatened	Transient
	Atlantic Loggerhead	Caretta caretta	Threatened	Threatened	Transient, rare nester on Assateague Island
Marine Mammals					
	Fin Whale	Balaenoptera physalus	Endangered	Endangered	Transient
	Right Whale	Eubalaena glacialis	Endangered	Endangered	Transient
	¹ Status for birds refers only to breeding status, migrants may have a different rank				

proposed placement area because of the severe physical disturbance that occurred to the area during the January and February 1998 storms.

5.3.2 Animals

Northern Assateague Island is of regional significance as a breeding ground for Piping Plover, Federally-listed as a threatened species. Between 14 and 61 breeding pairs nested on northern Assateague Island between 1986 and 1996 (Figure 4). Piping Plover are migratory; they return to the island from their wintering grounds in March and build nests on open sandy areas. Eggs are typically present from April through July, with the latest laying occurring about July 1st. Eggs take 28 days of incubation to hatch. Following hatching, Piping Plover broods forage for food primarily on the bay beach and island interior. Plover broods may forage up to 1 to 2 miles (1.6 to 3.2 km) from their nests. Piping Plover chicks fledge (learn to fly) by about 25 days after hatching. As of early May, five plover pair have nested immediately to the west of the proposed emergency sand placement area. It is possible that additional plover pairs will nest in the area. It is expected that this area will be used as a foraging ground for broods. Foraging habitat is expected to be abundant this year on northern Assateague as a consequence of impacts of the January and February 1998 storms.

A nesting colony of several hundred pairs of the state-threatened Least Tern is located on the northern end of the island to the north of 3.2 miles (5.1 km) south of the inlet. Least Tern chicks typically stay within the colony until they learn to fly. The northern end of the island also supports populations of the white tiger beetle (*Cicindela dorsalis media*), state-listed as endangered. This species occurs on beaches in the northernmost 3.7 miles (6 km) of the island. In 1996 the highest concentration of adults was found between 2.1 and 2.8 miles (3.5 to 4.5 km) south of the inlet. It is likely that the Northeasters in January and February 1998 severely impacted white tiger beetle within the proposed Emergency Action area, since at that time of year the beetles are within the sand and a large volume of sand was lost.

The coastal Atlantic Ocean waters off Assateague Island are not noted for the regular presence of whales and sea turtles (most listed as either threatened or endangered species); however, transient and migrant whales and sea turtles are encountered in the waters of the study area (Table 1). A Biological Assessment focusing on threatened and endangered sea turtles and mammals in the area has been prepared by the Baltimore District.

5.4 RESERVES, PRESERVES, AND PARKS

Assateague Island National Seashore and the State Park are located adjacent to one another and both provide high-quality recreational venues despite the cumulative effects of interrupted sand flow to the island for more than 60 years.

An artificial reef has been established on the northwestern portion of Great Gull Bank. Private recreational fishing vessels and commercial party boats frequent Great Gull Bank.

5.5 CULTURAL RESOURCES

5.5.1 Terrestrial Cultural Resources

No comprehensive archeological survey of Assateague Island has been conducted. However, limited archeological surveys and inventories, including documentary research and field investigations, have indicated the potential for historic and prehistoric archeological sites to exist within the onshore portion of the project area. These sites include former United States Lifesaving Service (USLSS) structures, former inlet locations, as well as prehistoric occupation sites. Shell mounds, in context with prehistoric flakes and pottery, occur near the Assateague Island National Seashore Visitors Center, suggesting the potential for prehistoric remains to exist. In addition, a number of properties associated with former settlements eligible for or listed on the National Register of Historic Places (NRHP) are also present within its bounds.

5.5.2 Submerged Cultural Resources

Submerged cultural resources consist of two types of sites: submerged prehistoric sites and shipwrecks. Recent studies indicate that landsurfaces exposed during the Pleistocene and the post-Pleistocene exist beneath the barrier islands and continue offshore. These landsurfaces may have been utilized by prehistoric people prior to the inundation of these areas as glaciers melted.

A number of wrecks have been identified in the coastal waters off of Assateague Island. Many of the earlier wrecks were recorded as either shoaling on the offshore shoals or directly wrecking on Assateague Island. However, the rapid westward migration of the barrier island suggests that these wrecks sites should be located significantly offshore. In 1997, the Baltimore District collected information pertaining to the nature and location of historically documented shipwrecks. Some of the shipwrecks were recorded as having foundered on Assateague Island.

The northern portion of Assateague Island has receded to the west substantially during the past fifty years. Therefore, intact cultural sites which may have existed on Assateague Island are currently offshore, and would have been substantially disturbed by the displacement of soils. Although the Maryland State Historic Preservation Office identified the presence of archeological materials on the shoreline of northern Assateague, they concurred with the findings of the Baltimore District that the placement of sand adjacent to the tidal line would mimic natural processes, and not effect cultural resources in this area (Maryland Historic Trust, 19 June 1997). Therefore, no cultural resource investigations were conducted for this project.

Section 106 compliance for the proposed short- and long-term restoration projects have involved a number of meetings and correspondence between the Baltimore District and the Maryland Historic Trust. Final concurrence by the State Historic Preservation Officer has

not been received for these projects. The Section 106 process will be concluded prior to the construction of the Emergency Action.

The Corps of Engineers is required by the National Historic Preservation Act, 36 CFR, Part 800, to determine whether culturally significant historic properties will be affected by any given Federal undertaking, and to minimize those effects through avoidance or mitigation. In accordance with this law and its implementing regulations, the Corps conducted a literature search and Phase I cultural resources reconnaissance for the short-term restoration of Assateague Island. The affected areas that were investigated include the northern 17.6 miles (11 km) of Assateague Island, an area 330 feet (100 m) offshore of the island, and the four offshore shoals that could potentially be used for borrow material.

The northern 3 miles (1.9 km) of Assateague Island is recent dune formation, and does not contain any significant cultural resources, either on the island or within the 1933 boundaries of the island. There is, however, a recorded shipwreck near the southern terminus of the project on Assateague Island. The Corps is conducting the required investigation to determine whether the shipwreck is a significant cultural resource and to determine whether it will be impacted by the short-term restoration project. Reconnaissance investigations did not identify any shipwrecks in the offshore shoals being evaluated for proposed borrow sites. The Corps is continuing to coordinate with the State Historic Preservation Office. (See Annex B for more detailed information regarding the cultural resources investigation)

5.6 HAZARDOUS, TOXIC, AND RADIOACTIVE WASTE

The entire coastal bays watershed was evaluated for hazardous, toxic and radioactive wastes (HTRW) in the first EIS. No RCRA or CERCLA sites were found in a records search for the project area. Consequently, the Baltimore District has concluded that no further HTRW investigations are needed. More detailed HTRW information was presented in the Assateague EIS.

5.6.1 Assateague Island

Assateague Island was used in both World War I and II by the Army and Navy. In World War II several ships were torpedoed and sunk off the coast. In addition, the island was used for quarantine and special training. Between 1944 and 1947, two rocket bombing ranges were established for target practice by land-based aircraft. Several ordnance burial sites were constructed at the end of the war for disposal of munitions. The Corps of Engineers will be conducting an investigation of potential ordnance and unexploded waste at the formerly used defense site (FUDS) on Assateague Island located approximately 8.6 miles (13.8 km) south of the inlet near the ranger station in the near future. Ordnance washed ashore in the vicinity of the ranger station following the January and February 1998 Northeasters, and this material will be removed in May 1998. The Baltimore District expects that conditions at the FUDS are unlikely to affect the proposed emergency beach

nourishment project, since the FUDS is approximately 3.8 miles (6.1 km) south of the proposed emergency action area. However, it is possible that OEW could occur within the proposed beach replenishment project area.

5.7 COMMUNITY SETTING

5.7.1 Land Use

The mainland shoreline of Sinepuxent Bay has residential development, farmland, forest, and salt marsh. Assateague Island is publicly owned and maintained parkland.

5.7.2 Traffic and Transportation

The Route 611 bridge that crosses Sinepuxent Bay provides the only vehicular access by road to northern Assateague Island. On the mainland shoreline immediately across from the island lies the Ocean City Airport. It is utilized mainly by operators of small commuter and private aircraft.

5.7.3 Navigation

There is one Federal channel in Sinepuxent Bay - Sinepuxent Bay (6 feet deep and 150 feet wide from the inlet to Green Point and thence 100 feet wide in Chincoteague Bay). Sinepuxent Bay is used by recreational boaters and commercial fishermen. Sinepuxent Channel was last dredged in 1972 when 6,000 yds³ were removed.

5.7.4 Public Health and Safety

The mainland communities and facilities on Assateague Island are vulnerable to flooding and other storm damage. Snug Harbor, a community built on filled salt marsh prior to wetland and floodplain protection regulations, is particularly vulnerable.

5.7.5 Visual and Aesthetic Values

The aesthetic features of the study area are varied and contrasting and represent a major factor attracting people to the area. The principal aesthetic features of the region are the Atlantic Ocean, the coastal bays, and their associated shorelines.

5.7.6 Recreation

Assateague Island State Park and the National Seashore provide high-quality recreational venues, but potential problems related to sand-starvation may affect their capacity to continue to provide these opportunities in the near-term future. Intense recreational fishing occurs on Great Gull Bank from private boats and headboats which frequent the area. This activity peaks during the summer months. Sinepuxent Bay supports a variety

of water-based recreational opportunities, these include swimming, fishing, crabbing, power-boating, jetskiing and water skiing.

5.8 ENVIRONMENTAL JUSTICE

Executive Order 12989, dated February 11, 1994 (*Environmental Justice in Minority Populations*), requires that proponents of Federal projects assess potential impacts of proposed projects on low income or minority populations. Information on minority and low income populations in the project area follows. The 1994 working-age population (16+) of Worcester county was 31,321, of which 20 percent is classified as minority. Unemployment was 7.4 percent for whites and 17.8 percent for minority populations. Approximately 11 percent of the county population in 1994 was below the Federal poverty level.

Section 6

6.0 EMERGENCY REPAIR IMPACTS

This section includes a detailed consideration of impacts of the emergency actions for northern Assateague Island on the project area. Direct Impacts would occur during dredging sand from Great Gull Bank; transporting sand to Assateague Island; placing sand on Assateague Island; and shaping sand on Assateague. Indirect Impacts would occur as natural processes modify the dredged area at Great Gull Bank and redistribute the sand that is placed on Assateague Island. Cumulative Impacts result from the incremental impact of the action when added to other past, present, and reasonably foreseeable future actions regardless of what agency (Federal or non-Federal) or person undertakes such actions.

6.1 Physical Environment

6.1.1 Surficial Geology and Sedimentary Processes

Assateague Island

Direct Impacts

Between 150,000 and 320,000 yd³ will be placed on the island from Great Gull Bank. The placed material will consist of sand coarser than the native sand, but this is not expected to cause substantial change to the island's surficial geological character.

Indirect Impacts

Following construction, the placed sand will be eroded by wind and waves. No significant downdrift impact of sand movement is expected because of the relatively minor volume of fill. Restoration of lost volume of sand will reduce probability of a new inlet forming, and will reduce rate of formation of new overwash flats on the bayside of the island.

Great Gull Bank

Direct Impacts

Dredging would remove between 150,000 and 320,000 cubic yards of material, or between 0.27 and 0.57 percent, of the volume of Great Gull Bank. This excavated volume will not be replaced in the foreseeable future by natural processes and can be considered a permanent loss. Sand underlying the material to be removed is similar in grain size to the sand to be removed; so the post-project shoal surface sand is expected to be similar in character to the pre-project surface. No substantial change to the character of the shoal is expected.

Indirect Impacts

Currents and waves will modify the excavated area after dredging, and over time, the depression left by dredging will blend in with adjacent shoal areas. No detrimental impacts to shoal character are expected.

Sinepuxent Bay

Direct Impacts

None are expected since no work will occur in the bay.

Indirect Impacts

Berm restoration will cause a minor reduction in the rate of overwash deposition along bayside of Assateague Island to pre-storm conditions.

6.1.2. Topography

Assateague Island

Direct Impacts

The emergency action will restore the project area to approximately its pre-storm topography, and be consistent with island character.

Indirect Impacts

The action will reduce the likelihood of a breach and contribute to the maintenance of the island's geologic integrity.

6.1.3. Bathymetry

Great Gull Bank

Direct Impacts

During dredging, the borrow area on the top of Great Gull Bank will be deepened, with the depth increase depending on what type of dredge is used. If a cutterhead dredge is used, depth may be increased by up to 16 feet (4.9 m) over a 6 acre (2.4 ha) area. If a hopper dredge is used, depth may be increased by several feet (1 m) over a larger area of up to, or perhaps exceeding, 20 acres (8 ha). Minor slumping may occur during dredging.

The remainder of the shoal and the shoal crest will be left at its existing height, and the overall shape and gentle slopes of the shoal will be maintained. No substantial impacts to shoal character are expected.

Indirect Impacts

None are expected since the dredged area will not change hydrodynamic conditions, and coastal processes will cause only slow bathymetric change on the shoal.

Sinepuxent Bay

Direct and Indirect Impacts

No direct impacts will occur since no work will occur within the bay. A minor indirect impact will occur as the rate of bay infilling by overwash deposition is reduced to pre-storm conditions.

6.1.4 Hydrodynamics

Assateague Island

Direct and Indirect Impacts

None are expected since the project will not alter wave nor tidal energies.

Great Gull Bank

Direct Impacts

Dredging of Great Gull Bank will not have a significant impact on hydrodynamics or wave action, and no impacts are expected to the shoreline of Fenwick or Assateague Islands.

6.1.5 Surface Water Quality

Assateague Island

Direct Impacts

Minor and local impacts to water quality as result of increased turbidity are expected as runoff of sand pumped directly onto the beach reaches the ocean. Turbidity will be minor because of the coarse nature of the material to be pumped, and will be within the range of natural conditions of this high energy area which frequently resuspend bottom sediments.

Indirect Impacts

None are expected since only short-term local impacts to water quality are expected.

Great Gull Bank

Direct Impacts

There will be short-term turbidity impacts in the dredged area. Since the material to be dredged is of a coarse grain size, suspended sediments will rapidly resettle on the bottom.

Indirect Impacts

None are expected, since water quality impacts will be short-term and local.

Sinepuxent Bay

Direct and Indirect Impacts

None expected since no work will occur within Sinepuxent Bay.

6.1.6 Air Quality

Direct Impacts

Emissions during sand placement will be produced by dredges, bulldozers, trucks, small construction vehicles, and workboats. Coordination with the Maryland Department of the Environment (MDE) for the Short and Long-term Restoration projects has indicated that air quality impacts for these proposed actions are expected to be localized, temporary, and insignificant and within the Ozone and NQ limits for this non-attainment area. The MDE has concurred with these findings and has indicated that the OCWR project is expected to be in conformity with the State of Maryland implementation of the 1990 Clean Air Amendments. The same determination is expected for the emergency action.

Indirect Impacts

None are expected since no emissions will occur after construction.

6.1.7 Noise Impacts

Direct Impacts

Noise during construction will be produced by dredges, bulldozers, trucks, and workboats. Since northern Assateague receives only infrequent use by tourists, impacts to beachgoers are expected to be minimal. Noise impacts to Piping Plover and other rare bird species are expected to be insignificant, and are discussed in Section 6.3.

Indirect Impacts

None are expected since no noise will be produced following project construction.

6.2 Biological Resources

6.2.1 Plant Communities

6.2.1.a Submerged Aquatic Vegetation (SAV)

Direct Impacts

None are expected since no construction activities will occur in Sinepuxent Bay, and SAV is absent from the ocean waters of the project area.

Indirect Impacts

Restoring island height is expected to reduce overwash disturbance to SAV beds to pre-storm conditions. This will cause a minor positive impact to the SAV beds.

6.2.1.b Wetlands

Direct Impacts

No direct impacts to salt marsh will occur. Unvegetated interior wetland flats that developed in the project area as a consequence of the sand loss of the January and February 1998 Northeasters will be filled in. These moist interior flats may become foraging areas for shorebirds (including Piping Plover and other rare species, see Section 6.4) during spring and summer 1998 prior to implementation of the proposed emergency action. Loss of this habitat in the project footprint is not expected to be significant because unvegetated wetland flats will be unusually abundant this year because of substantial loss of sand elsewhere on the island. These features are naturally transient and do not persist for extended periods of time.

Indirect Impacts

None are expected since no substantial movement of sand is expected following construction.

6.2.1.c Upland Vegetation

Direct Impacts

Since upland vegetation in the project area is sparse to absent, adverse impacts to island vegetation will be insignificant.

Indirect Impacts

None are expected since the berm will restore pre-storm conditions which allowed frequent overwash and disfavored upland vegetation.

6.2.2 Benthos

Assateague Island

Direct and Indirect Impacts

No impacts are expected since work will take place on the island rather than in the water.

Great Gull Bank

Direct Impacts

Dredging will destroy relatively nonmotile benthic organisms, including surf clam for which there is a commercial fishery. Underlying sands lacking benthic populations will be exposed and will become the new shoal surface. These impacts will be locally significant but will be of a short duration and are not significant to the shoal as a whole.

Indirect Impacts

Minor localized food web disruption will occur as benthos are destroyed and organisms that feed on the benthos are disfavored. Colonization of the borrow area by benthic organisms is expected within several months to a year following dredging, and long-term impacts are expected to be insignificant.

6.2.3 Nekton

Assateague Island

Direct and Indirect Impacts

No impacts are expected since work will take place on the island rather than in the water.

Great Gull Bank

Direct Impacts

A short-term increase in turbidity during dredging and resulting disturbance will cause some nekton to temporarily relocate. In addition, some entrainment and destruction of nekton is expected during dredging. These impacts are expected to be insignificant to nekton populations.

Indirect Impacts

The dredging would be done to maintain the shoal crest and general shape of the shoal to minimize impacts to nekton that utilize the shoal. No significant long-term impacts are expected.

6.2.4 Plankton

Direct and Indirect Impacts

During dredging plankton will be entrained and destroyed. No significant detrimental impacts are expected to populations of any particular species, however, because of the high degree of dispersal (low concentration) of planktonic organisms in the water column. No significant impacts are expected during or following placement on Assateague Island since work will take place on land rather than in the water.

6.2.5 Reptiles and Amphibians

Direct and Indirect Impacts

None expected since few, if any, reptile or amphibian species inhabit or transit the proposed project area. Sea turtles which are discussed in Section 6.3.

6.2.6 Mammals

Assateague Island

Direct Impacts

Terrestrial mammals on Assateague may avoid the placement area during construction. Habitat quality in the placement area is low, and avoidance of the area will cause no significant impacts to mammals.

Indirect Impacts

By strengthening island integrity, the emergency action will maintain terrestrial passageway between northern end and remainder of the island for terrestrial mammals.

Great Gull Bank

Direct Impacts

Any harbor seals or dolphins that are in the project area during the dredging and placement of material should be able to readily avoid dredging equipment. These animals may temporarily relocate to other areas during dredging. Impacts to whales are covered in Section 6.3.

Indirect Impacts

None are expected to marine mammals since habitat quality will not be significantly impacted.

6.2.7 Birds

Assateague Island

Direct Impacts

Disturbance via noise, and close proximity of people and construction equipment to foraging shorebirds is expected. Shorebirds disturbed by these activities will temporarily relocate to other areas. Storm repairs will fill recently-developed low-lying areas which are expected to develop into high quality foraging areas for shorebirds. This loss will not be significant since shorebirds can readily go elsewhere to feed. Potential impacts to special status species are considered in 6.3 Rare and Endangered Species.

Indirect Impacts

The project will reduce overwash and slow the rate of formation of overwash deposits which can serve as important foraging areas. This loss is not expected to be significant since unvegetated wetland flats are expected to be abundant on the island this year, and shorebirds can readily go elsewhere to feed.

6.3 Rare, Threatened and Endangered Species

6.3.1 Piping Plover and Rare Beach-Nesting Bird Species

Assateague Island

Direct Impacts

Risks of direct impacts to Piping Plover focus on: construction vehicles crushing flightless chicks; fences increasing the vulnerability of flightless chicks to predators; habitat usurped during construction inducing territorial interactions between individual plovers driven off the site; and potentially disturbing nests. The Baltimore District is intensively coordinating with the U.S. Fish and Wildlife Service, the National Park Service, and the Maryland Department of Natural Resources on these Piping Plover issues. Coordination with the U.S. Fish and Wildlife Service under the Endangered Species Act is proceeding on an expedited basis.

Direct adverse impacts to Piping Plover will be minimized by mitigation measures being developed in coordination with the U.S. Fish and Wildlife Service, National Park Service,

and Md. Dept. of Natural Resources. Potential measures under consideration include: excluding Piping Plover from the construction site; requiring buffer zones around nests and foraging areas; and implementing a monitoring program for the construction site and vehicles (discussed in Section 3). Measures to minimize impacts were discussed in an interagency meeting held April 21st, and coordination is ongoing (see Annex C for record). To exclude Piping Plover from the construction area, plover may be ushered out of the project footprint, and then a silt fence may be erected to exclude flightless chicks from reentering the area. The area would be monitored to ensure that the integrity of the fence, and its ability to exclude pedestrian plovers, is maintained. It is expected that there will be no plover nests in the project area. However, if nests do occur within the project area within the time proposed for construction then options will include altering the construction sequence, potentially working around the nest(s) area while leaving a 100 to 200 yard (m) buffer, or postponing work until after all eggs have hatched (late July). If the area is determined to be of critical importance as a foraging ground, then a buffer zone may also be required to protect the area as foraging habitat. All vehiclestravelling to and from the construction site will be accompanied by a plover monitor to minimize the risk of crushing plover chicks. To the degree practicable, equipment will be deployed to the site by barge from the ocean.

The project will cause the loss of access to, and filling in of, approximately 50 acres of potential foraging habitat. However, it is expected that this loss will not be significant because foraging habitat is expected to be abundant elsewhere on the island. A Biological Assessment will be prepared by the Baltimore District to address impacts to Piping Plover.

No direct impacts to Least Tern or American Oystercatcher are expected since these birds are not expected to be nesting or foraging in the project area.

Indirect Impacts

Indirect impacts have been minimized through project design and are expected to be non-significant. The constructed berm elevation will mimic the elevation of the pre-storm feature which served to create habitat ideal for Piping Plover. No indirect impacts are expected to Least Tern or American Oystercatcher.

6.3.2 Sea Beach Amaranth and Other Rare Plant Species

Direct and Indirect Impacts

No impacts to sea-beach amaranth are expected since the species is not known to currently occur on the island. The six state-rare plant species recently documented to occur on the north end are expected to be absent from the proposed placement area and no impacts are expected. If individuals of these species are determined to be present in the placement area then mitigation measures, such as potential relocation of individual plants, will be considered.

6.3.3 Sea Turtles

Direct Impacts

The proposed Emergency Action may adversely affect individual loggerhead, Kemp's ridley, and green sea turtles, but is not likely to jeopardize the continued existence of populations of these species. Risk of entraining and destroying sea turtles in the dredge will be minimized by selective use of, and modifications to, dredging equipment and methods. Coordination with the National Marine Fisheries Service (NMFS) has indicated that properly used and deployed approved sea turtle deflectors will minimize significant adverse impacts to sea turtles in the project area. NMFS issued an incidental take statement for sea turtles for the proposed Short and Long-term Assateague Restoration projects in its April 6th, 1998 Biological Opinion. Under the Endangered Species Act, an incidental take statement allows for the destruction of individuals of a Federally-endangered or threatened species incidental to the pursuit of the otherwise lawful action, without the project violating the Endangered Species Act. It is expected that a favorable Biological Opinion from NMFS which includes an incidental take statement will be provided for the proposed Emergency Action as well. Dredge crews will be trained to ensure that sea turtle deflectors are deployed correctly and that dredging methods minimize risk of detrimental sea turtle impacts. NMFS approved observers will monitor dredge operations to look for sea turtle remains to determine whether incidental take has been exceeded. If incidental take is exceeded then consultation will be reinitiated with NMFS.

Indirect Impacts

None are expected since no significant impacts to habitat quality in the area is expected.

6.3.4 Whales

Direct Impacts

The National Marine Fisheries Service in its April 6th, 1998 Biological Opinion on the proposed Short- and Long-term Restoration projects determined that these actions are not likely to adversely affect whales. It is expected that NMFS will reach the same conclusion regarding the proposed emergency action. The National Marine Fisheries Service is expected to issue an amendment to its April 1998 Biological Opinion covering the emergency action. Although the chance of a vessel striking a whale is very remote, whale spotters will be stationed during daylight hours to minimize the risk of ship-strikes of whales.

Indirect Impacts

None are expected since habitat quality in the project area will not be altered significantly.

6.3.5 White Tiger Beetles

Direct Impacts

The proposed project area is south of the area most recently known to support high concentrations of white tiger beetles on northern Assateague Island. In addition, it is expected that the 1998 Northeasters destroyed beetles occurring in the area, and greatly

reduced the quality of the proposed project area as habitat for this species. However, if individual white tiger beetle adults and larvae do occur in the project area they will probably be destroyed by construction traffic and heavy equipment. Tiger beetle concentrations occurring in adjacent areas to the north of the project site should not be impacted, and losses of individuals will not detrimentally impact white tiger beetle populations on the island.

Indirect Impacts

Undisturbed areas will serve as a refuge from which tiger beetles can recolonize the project area following construction, and no significant long-term impacts to white tiger beetle populations are expected.

6.4 Hazardous, Toxic, and Radioactive Wastes (HTRW)

There are no known HTRW sites in the study area; therefore, no HTRW impacts are expected. The Baltimore District is currently investigating the Formerly Used Defense Site (FUDS) located to the south of the Ranger Station south of the Route 611 Bridge. It is not expected that there will be any effect from the FUDS site on the emergency project area on northern Assateague Island. However, additional information on this issue will become available in the near future. There are no known CERCLA or RCRA sites in the project area; therefore, no HTRW impacts are expected.

6.5 Reserves, Preserves, And Parks

6.5.1 Assateague Island State Park

Direct and Indirect Impacts

No direct impacts will occur to the state park, and indirect impacts that occur via material being transported to the state park waters in the longshore transport system are expected to approximate pre-storm conditions.

6.5.2 Assateague Island National Seashore (AINS)

The National Park Service is a project sponsor and has been thoroughly involved in designing the project. The project will serve to maintain the geological integrity of the island and reduce the probability of a breach until a long-term solution can be implemented. Impacts to the national seashore are evaluated extensively in this environmental assessment.

6.5.3 Great Gull Banks Artificial Reef

Direct Impacts

No dredging will occur in the artificial reef fish haven on Great Gull Bank. Dredging will generate turbidity in waters adjacent to the haven; however, sediments are expected to rapidly settle out of suspension because of the coarse grain size of the material, and no

significant impacts are expected to the fish haven. Construction equipment may cause additional disturbance to nekton and may cause them to relocate from the project area during dredging. The permanent minor loss of sand from elsewhere on the shoal is expected to have only negligible impact on the habitat value of the artificial reef.

Indirect Impacts

None are expected since habitat quality will not be substantially altered.

6.6 COMMUNITY SETTING

6.6.1 Visual and Aesthetics Values

Direct Impacts

The presence of construction and dredging equipment will cause a temporary detrimental impact to aesthetics in the project area, and along vehicle and ship transit corridors. Since northern Assateague receives only limited recreational use, this impact will not be significant.

Indirect Impacts

None are expected since the project will restore pre-storm conditions.

6.6.2 Navigation

Direct and Indirect Impacts

None are expected since dredge trips to and from the borrow site will not impede navigational use of the area. However, the dredge and recreational and commercial watermen will have to exercise caution to avoid collisions.

6.6.3 Recreation

Direct Impacts

Dredging will occur during peak recreational boating and fishing season. Dredging equipment will be well-marked to minimize the risk of collisions. The bay waters in the lee of the project area are utilized heavily by jetskiers. No impacts are expected however, since no work will take place in the bay.

Indirect Impacts

By reducing the risk of a breach, the project will maintain pedestrian access to the island that could be lost if a new inlet forms. Minor short-term impacts to benthos of Great Gull Bank may cause short-term reduction in fishery value of the shoal, but no significant long-term impacts are expected.

6.7 Environmental Justice

No significant adverse impacts under Executive Order 12989, dated February 11, 1994 (*Environmental Justice in Minority Populations*), are expected because there are no minority or low income communities located near the beach replenishment area.

6.8 Cultural Resources

The Baltimore District has previously demonstrated to the SHPO that the placement of sand on the ocean side of Assateague Island will have no effect on cultural resources. Although there are intact cultural deposits on the inlet side of the island, these areas are outside of the Area of Potential Effect for the proposed sand placement action. The District has consulted with the SHPO regarding the sand placement effort, and the SHPO has concurred that the project will have no effect on cultural resources. Therefore, no further action under the requirements of the National Historic Preservation Act are required.

Fill sources have been investigated from both Great Gull Bank and areas immediately offshore of Ocean City have been previously surveyed for cultural resources, demonstrating the absence of cultural resources in those areas. Additionally, fill obtained from other areas which have been subjected to cultural resource investigations and have demonstrated the absence of cultural resources can be utilized. As long as the fill material is acquired from areas with no cultural resource impacts, no further consultation under the National Historic Preservation Act is required, and the project will have no effect on cultural resources.

6.9 CUMULATIVE IMPACTS

The project will contribute to the continued maintenance of Assateague as an undeveloped barrier island by the National Park Service; this is of particular importance given the relative scarcity of undeveloped barriers along the Atlantic coast. No additional infrastructure such as roads and lodging will be required at Assateague as a result of the proposed project. The project is not expected to change the number of people using the project area. However, visitation at Assateague is likely to increase as the population of the eastern United States increases and there are fewer undeveloped areas like Assateague to enjoy.

Several proposed and current Federal actions require consideration. The National Park Service has ceased to maintain constructed dunes along the majority of southern Assateague. It is expected that additional Piping Plover nesting habitat will become available in this area. The proposed short and long-term restoration projects proposed by the Baltimore District for Assateague Island are expected to largely restore the historic character of the north end, reduce the likelihood of future breaches, and restore the geological integrity of the island. It is not known at this time whether the volume of material to be added to under the short-term restoration will be reduced as a result of the proposed emergency action.

Offshore shoals within Maryland waters north of the Ocean City Inlet are already being heavily utilized as sources of sand for the nourishment of the Ocean City beach. Sand resources within Maryland state waters available for use by Ocean City could conceivably be depleted between the years 2010 and 2025. The increasing use of offshore shoals along the Atlantic coastline as sand sources for beach nourishment, as well as for sources of sand and gravel for construction, necessitates comprehensive consideration of long-term management of these non-renewable features in the near future.

7.0 ENVIRONMENTAL COMPLIANCE

In addition to the environmental impacts discussed in this EA, a review of the proposed action has been made with regard to other potential areas of concern. Due to the expected impacts, a 404(b)(1) evaluation of the proposed project on waters of the United States was performed pursuant to the guidelines promulgated by the Administrator, U.S.E.P.A., under authority of Section 404 of the Clean Water Act. A report of that evaluation can be found in Annex A. A summary of coordination efforts can be found in Annex C. The Public Notice for the project has been issued, and it is expected that a Water Quality Certificate will be awarded from the state of Maryland. It is expected that the state of Maryland will determine that the proposed action is in compliance with the state's Coastal Zone Management program. Appendix B outlines the statutes and executive orders that are potentially applicable to the project, including the level of compliance. If determined necessary by the U.S. Fish and Wildlife Service, the District will prepare a biological assessment to further evaluate potential impacts to Piping Plover.

8. COORDINATION

In compliance with the National Environmental Policy Act (NEPA) of 1969 and the Clean Water Act, the proposed project has been coordinated with concerned resource agencies. To address Piping Plover concerns, a meeting was held with the U.S. Fish and Wildlife Service, Md. Dept. of Natural Resources, and National Park Service. A list of agencies contacted and their responses are included in Annex C. Copies of all correspondence can be found in Annex C. The focus of coordination efforts with Federal and state resource agencies, with documentation, is to ensure that environmental factors are considered while planning and executing a prudent and responsible project.

9. CONCLUSION

The overall environmental impacts associated with the emergency placement of sand on Assateague Island have been evaluated and assessed by the U.S. Army Corps of Engineers. The Corps anticipates that significant adverse environmental impacts to Piping Plover and sea turtles can be minimized through implementation of several potential mitigation measures as described in this document. Based on the responses to the public notice, various resource agencies and the Corps do not expect any other environmental

issues to be of concern. Therefore, it has been determined that the preparation of an Environmental Impact Statement is not warranted. The District has prepared a Mitigative Finding of No Significant Impact (FONSI) which is provided at the beginning of this EA.

SELECT REFERENCES USED IN THE PREPARATION OF THIS REPORT

- Conkwright, R.D., and R.A. Gast. 1994. *Potential offshore sand resources in central Maryland shoal fields*. Maryland Geological Survey. Coastal and Estuarine Geology File Report No. 94-9.
- Cook, S.K. 1988. "Physical oceanography of the middle Atlantic Bight." A.L. Pacheco (ed.), *Characterization of the Middle Atlantic Water Management Unit of the Northeast Regional Action Plan*. NOAA Technical Memorandum NMFS-F/NEC-56.
- Davis, R.E., and R. Dolan. 1993. "Nor'easters." *American Scientist*. 81: 428-439.
- Hall, R.L. 1973. Soil survey of Worcester County, Maryland. U.S. Department of Agriculture, Maryland Agricultural Experiment Station. 78 pp. plus maps and appendices.
- Hayden, B.P., and R. Dolan. 1979. "Barrier islands, lagoons, and marshes." *Journal of Sedimentary Petrology*, 49(4): 1061-1072.
- Hubertz, J.M., Brooks, R.M., Brandon, W.A., and Tracy, B.A. 1993. "Hindcast Wave Information for the Atlantic Coast 1956-1975." WIS Report 30, Coastal Engineering Research Center, U.S. Army Engineer Waterways Experiment Station, Vicksburg, MS.
- Kerhin, R.T. 1989. *Non-energy minerals and surficial geology of the continental margin of Maryland*. Marine Geology, 90: 95-102.
- Knisley, C.B., and J.M. Hill. 1991. "Distribution and abundance of two tiger beetles, *Cicindeladorsalis media* and *C. lepida* at Assateague Island, Maryland, 1990." Submitted to Md. Dept. of Natural Resources Natural Heritage Program. Annapolis, MD.
- Kumer, J.P. 1996. "Assateague Island National Seashore monitoring program - 1984 to 1996." Unpublished data. National Park Service, Assateague Island National Seashore, Berlin, MD.
- Kumer, J., S. Ramsey, T. Earl, D. Brinker, and P. Railey. 1998. "Management and monitoring of the Piping Plover at Assateague Island National Seashore, Maryland 1997 summary report." Unpublished data. National Park Service, Assateague Island National Seashore, Berlin, MD.
- Lea, C., and R. Railey. 1998. Assateague Island National Seashore Vegetation Monitoring, North End Restoration, 1996-1997. Unpublished data. National Park Service, Assateague Island National Seashore, Berlin, MD.

- Leatherman, S.P. 1988. *Barrier Island Handbook*. University of Maryland, College Park.
- McKenzie, T.P., and J.R. Nicolas. 1988. "Cetaceans, sea turtles, and pinnipeds of the mid-Atlantic Water Management Unit." A.L. Pecheco (ed.), *Characterization of the Middle Atlantic Water Management Unit of the Northeast Regional Action Plan*. NOAA Technical Memorandum NMFS-F/NEC-56.
- Orth, Robert, Judith Nowak, Gary Anderson, and Jennifer Whiting. 1994. *Distribution of submerged aquatic vegetation in the Chesapeake Bay and tributaries and Chincoteague Bay- 1993*. Prepared by Virginia Institute of Marine Science for the United States Environmental Protection Agency.
- Perry, B. 1985. *The middle Atlantic Coast: Cape Hatteras to Cape Cod*. Sierra Club Books, San Francisco. 470 pp.
- Rakocinski, C.F., R.W. Heard, S.E. LeCroy, J.A. McLelland, and T. Simons. 1996. "Responses by macrobenthic assemblages to extensive beach restoration at Perdido Key, Florida, U.S.A." *Journal of Coastal Research*, 12(1): 326-353.
- Shreve, F., M.A. Chrysler, F.H. Blodgett, and F.W. Besley. 1910. *The plant life of Maryland. Special publication, volume III*. The Johns Hopkins Press, Baltimore.
- Stauble, D. K., Garcia, A. W., Kraus, N. C., Grosskopf, W. G., and Bass, G. P. 1993. Beach Nourishment Project Response and Design Evaluation: Ocean City, Maryland, Report 1, 1988-1992, Technical Report CERC-93-13, USAE Waterways Experiment Station, Vicksburg, MS 39180-6199.
- Titus, J.G., and V.K. Narayanan. 1995. The probability of sea level rise. U.S. Environmental Protection Agency. Office of Policy, Planning, and Evaluation. EPA 230-R-95-008.
- U.S. Army Corps of Engineers. 1997. "Ocean City Maryland and Vicinity Water Resources Study DRAFT Integrated Interim Report and Environmental Impact Statement Restoration of Assateague Island. Department of the Army, U.S. Army Corps of Engineers, Baltimore District, Baltimore.

ANNEX A

CLEAN WATER ACT SECTION 404(b)(1) EVALUATION NORTHERN ASSATEAGUE ISLAND STORM REPAIR WORCESTER COUNTY, MARYLAND MAY 1998

I. Project Description

a. Location

The project area includes northern Assateague Island, northern Sinepuxent Bay, Great Gull Bank, and proximate coastal waters of the Atlantic Ocean (Figure 1). The area is shown on National Ocean Service Chart No. 12211, and on the U.S. Geological Survey Ocean City, Berlin, and Tingles Island 7.5' quadrangle topographic maps. Northern Assateague Island is located at 38.30006° latitude and 75.10884° longitude (decimal degrees).

b. General Description

Between 115,000 m³ (150,000 yd³) and 245,000 m³ (320,000 yd³) of sand fill will be placed on northern Assateague Island over an area 2,560 m (8,400 ft) in length by 75 m (245 ft) in width. A low berm which approximately duplicates the pre-storm condition of the project area will be constructed on the island. The sand will be dredged from Great Gull Bank.

c. Purpose

Strong Nor'easter storms in January and February 1998 severely eroded the northern end of Assateague Island National Seashore, creating an extremely low area 2.4 km (1.5 mi) long from 5.1 to 7.7 km (3.2 to 4.8 mi) south of the inlet. The purpose of the action will be to restore the island to its pre-storm condition. Although natural coastal processes in the three months since the storm have restored approximately 115,000 m³ (150,000 yd³) of sand to the proposed project area, it is expected that continued natural recovery will not be sufficient to protect the island from breaching during the next Northeaster storm season. Although breaching is a natural process, it is presumed that interruption of the longshore transport system at Ocean City by the Corps of Engineers jetties has increased the risk of island breaching. The repair procedures are constrained by the need to minimize detrimental impacts to Piping Plover (Federally-listed as Threatened) that nest on the northern end of the island, as well as several species of transient sea turtles (Federally-listed as Endangered or Threatened) that may occur in the coastal ocean.

d. General Description of Discharge Material

(1) *Characteristics of Fill Material* - The material will consist primarily of sand, although minor amounts of gravel, shell fragments, silts, and clays may also be included.

(2) *Fill materials*

Between 115,000 m³ (150,000 yd³) and 245,000 m³ (320,000 yd³) of material may be placed on the island.

(3) *Source of Material* - Sand will be dredged from Great Gull Bank. Great Gull Bank is an offshore shoal located about 8 km (5 mi) east of Assateague Island in the Atlantic Ocean. The shoal is oblong in shape and is oriented southwest/northeast. The shoal covers an area of approximately 4,900 ha (1,980 acres). Maximum length and width are about 6 km (20,000 feet) and 1.8 km (6,000 feet) respectively. The shoal contains 42,800,000 m³ (56,000,000 yd³) of sand.

e. Description of the Proposed Discharge Site

The discharge site will be on the beach of northern Assateague Island, and extends from 5.1 to 7.7 km (3.2 to 4.8 mi) south of the Ocean City Inlet (Figure 2). The placement area is very low-lying and is overwashed during bimonthly spring high tides and even minor storm events. The area is largely devoid of vegetation and dunes. The placement area is notable as a nesting area for Piping Plover (Federally listed as Threatened). Least Tern (state-listed as Threatened) and American Oystercatcher (state-listed as Rare/Watch List) nest to the north of the proposed placement area.

f. Description of Dredging and Placement Method

It is expected that a hopper dredge or cutterhead dredge will be used to dredge sand for the emergency action. If a hopper dredge is used, sand will be dredged off Great Gull Bank and pumped into the vessel. The hopper dredge will then travel to a pump-out point located about 600 m (2000 ft) offshore of Assateague Island where a barge with a booster pump will be waiting. The barge mounted booster pump will pump the sand in a slurry from the dredge to the beach through a steel pipeline. Pumping of sand will be done for a maximum distance of up to 1,220 m (4,000 ft) north or south of where the pipeline crosses up onto the beach. Beach nourishment may be completed in two sections. If necessary, the barge and booster pump would be moved to a new pump out point to continue the project, and an additional pump out point will be established. The pipeline will lie on the seafloor oriented perpendicularly to the shoreline. The hopper dredge will then return to the borrow area and resume dredging. Between 80 and 175 transits from the borrow area to the pump-out point will be made by the hopper dredge, depending on whether the volume of sand dredged is closer to the minimum or the maximum volume that is expected to be required.

If a cutterhead dredge is used, sand will be pumped from the borrow area through a pipeline on the sea floor and up on to the beach. If required, a floating booster pump would be added to the pipeline. The ideal set-up for placing the sand on the beach with the cutterhead dredge would be to work from North to South. Pipeline would be added to the discharge end as needed to proceed along the beach.

Bulldozers will then be used to create areas to trap and shape sand as it exits the pipeline to form the berm. A trapezoidal berm with a width of 75 m (245 ft), a crest elevation of 2.4 m (8 ft) NGVD, and one on ten side slopes is recommended to be constructed beginning approximately 23 m (75 ft) landward of the existing mean high water (MHW) shoreline. This feature would extend approximately 2,560 m (8,400 ft) along the shoreline from 5.1 to 7.7 km (3.2 to 4.8 mi) south of the Ocean City Inlet. Between 12 and 15 round-trips by four wheel vehicles will occur on a daily basis between the placement area and Assateague Island State Park to transport personnel and possibly fuel. Lights will be set up in the placement area so that work can proceed around the clock; a fuel tank and porta-john will also be set up in the placement area.

Work will take place during summer 1998 and may take several weeks to complete. Inclement weather or equipment problems may increase the amount of time required. Additional work delays may occur due to stoppage to protect Piping Plover, or if incidental take of sea turtles is exceeded (see e.(6) *Threatened and Endangered Species* for additional information).

II. Factual Determinations

a. Physical and Substrate Determinations

(1) *Substrate elevation and slope* - Water depths on Great Gull Bank range from 5.8 (19 ft) to about 15 m (50 ft). Water depths on the seafloor adjacent to the offshore shoal range from 11 m (36 ft) to about 18 m (60 ft). Slopes on Great Gull Bank are very gentle. Dredging done on Great Gull Bank will maintain the overall shape of the shoal, although water depths may be locally increased by as much as 5 m (16 ft). Natural replenishment of sand to Great Gull Bank following dredging is not expected. Elevations on Assateague Island in the proposed project area are as low as 1 m (3.3 m). The constructed storm berm will be 75 m (245 ft) wide at its base and crest at an elevation of 2.4 m (8.0 ft) NGVD with 1 on 10 side slopes. The berm will conform to substrate elevations and slopes on adjacent sections of the island.

(2) *Sediment Type* - Sediment on Great Gull Bank is predominantly medium sand with coarse to fine sands also occurring within the shoal. Sand along northern Assateague ranges from medium sand at the dune toe and at mean low water, to fine sand on the nearshore sand bar crest.

(3) *Dredged/Fill Material Movement* - Sand placed on Assateague Island will be attacked and moved by wind and waves. Shoreline erosion will continue in the placement area at the same rate as prior to construction, about 5 m/yr (16 ft/yr). Material will be transported within the longshore transport system, generally in a southerly direction, but will not cause any significant down-drift impacts to the physical character of the island.

(4) *Other Effects* - None.

(5) *Actions Taken to Minimize Impacts* - Dredging impacts to the physical character of Great Gull Bank will be minimal because of the relatively small-scale volume to be removed compared to the volume of the shoal. The dredging will avoid the crest and sides to maintain the general character

of the shoal. If continued sand accretion to Assateague Island occurs via natural processes then less sand will be required for the beach nourishment. Only enough sand to restore the island to pre-breach conditions will be required.

b. Water Circulation, Fluctuation, and Salinity Determinations

(1) Water

- (a) Salinity - No change expected.
- (b) Chemistry - No change expected.
- (c) Clarity - Minor and temporary reduction expected during construction due to turbidity. No long-term impact expected.
- (d) Color - Minor and temporary change expected during construction due to minor increase in turbidity. No long-term impact expected.
- (e) Odor - No change expected.
- (f) Taste - Not applicable.
- (g) Dissolved Gas Levels - No change expected.
- (h) Nutrients - No change expected.
- (i) Eutrophication - Not expected to occur.
- (j) Temperature - No change expected.

(2) Current Patterns and Circulation

- (a) Current Patterns and Flow - No change expected.
- (b) Velocity - No change expected.
- (c) Stratification - No change expected.
- (d) Hydrologic Regime - No change expected.

(3) Normal Water Level Fluctuations - No change expected.

(4) Salinity Gradients - No change expected.

(5) Actions That Will Be Taken to Minimize Impacts - Not applicable.

c. Suspended Particulate/Turbidity Determinations

(1) Expected Changes in Suspended Particulates and Turbidity Levels in Vicinity of Placement Site - Minor, localized, and short term impacts are expected to occur during both dredging and placement. Coarse grain-size material will rapidly settle out of suspension. Turbidity levels are expected to rapidly return to background levels once dredging is completed.

(2) Effects (degree and duration) on Chemical and Physical Properties of the Water Column

- (a) Light Penetration - Minor, temporary, and localized reduction in light penetration due to turbidity may occur during dredging at borrow site and at placement site on northern Assateague.
- (b) Dissolved Oxygen - Minor, temporary, and localized reduction in dissolved oxygen due to turbidity may occur during construction.
- (c) Toxic Metals and Organics - No toxic metals or organics are expected to be released into the water column.
- (d) Pathogens - No pathogens are expected to be released into the water column.

- (e) Aesthetics - No change expected.
- (f) Temperature - No change expected.

(3) *Actions Taken to Minimize Impacts* - Construction methods are based on previous beach nourishment projects at Ocean City in which measures taken to reduce environmental impacts that would occur from loss of sand also generally reduce costs by reducing loss of pumped sand. All work will conform to the requirements of the State water quality certificate. Construction specifications provided to the contractor state that compliance is mandatory for all applicable environmental protection regulations for pollution control and abatement.

d. Contaminant Determinations

Environmental coordination letters and historical research indicate that no contaminant sources are located in the area which will be affected by the construction. Clean sand will be used for beach nourishment; therefore, no significant levels of contaminants are anticipated to be released into the water column.

e. Aquatic Ecosystem and Organism Determinations

(1) *Effects on Plankton* - Impacts from entrainment into the dredge and because of potential turbidity during construction are anticipated to be minor and temporary. No detrimental long-term impacts are expected.

(2) *Effects on Benthos* - Dredging at the borrow site will destroy relatively non-motile benthic organisms that inhabit the site. It is expected that benthos will recolonize the area and return to pre-project levels within several months to a year following dredging. Negligible and temporary impacts to benthos in areas adjacent to the borrow and placement sites may occur during construction as a result of increased turbidity.

(a) Primary Production, Photosynthesis - Minor, temporary, and localized reduction in photosynthesis and primary production due to turbidity may occur during construction.

(b) Suspension/Filter Feeders - Dredging will destroy relatively non-motile suspension/filter feeders that inhabit the borrow site. Minor, temporary, and localized impacts to suspension and filter feeders in the borrow and placement areas may occur due to turbidity created by construction activities. Suspension and filter feeders are expected to recolonize the dredging site and recover to pre-project levels within several months to a year following project construction.

(c) Sight Feeders - Minor, temporary, and localized impacts due to turbidity may occur during construction. Nonsignificant change expected after construction.

(3) *Effects on Nekton* - Dredging is anticipated to temporarily affect the distribution of nektonic organisms during construction activities, which may relocate away from the project area.

(4) *Effects on Aquatic Food Web* - The aquatic food web is anticipated to be temporarily impacted to a minor degree by loss of benthos on Great Gull Bank.

(5) *Effects on Special Aquatic Sites*

(a) Sanctuaries and Refuges - Beach nourishment will take place within Assateague Island National Seashore. Impacts to the park have been discussed extensively in this document. Any dredging on Great Gull Bank will take place adjacent to an artificial reef area designated by the state as a fish haven. Impacts to the fish haven will be minimal since no dredging will take place on the fish haven.

(b) Wetlands - The project will not directly impact vegetated wetlands. The project will fill low-lying moist flats formed in the January and February Nor'easters that may serve as foraging areas for shorebirds, including Piping Plover.

(c) Tidal flats - The project will reduce the frequency of cross-island overwash. This will reduce the rate of intertidal flat formation to pre-storm conditions.

(d) Vegetated Shallows - Beach nourishment will reduce cross-island overwash to pre-storm levels and reduce the disturbance rate to SAV beds in the lee of Assateague.

(6) *Threatened and Endangered Species* - Impacts to Piping Plover could occur through loss of foraging habitat and possible, although unlikely, disturbance to nests. Piping Plover chicks could potentially be crushed during construction. Other potential impacts include increased chick vulnerability to predation along a silt fence that may be used to exclude plover from the construction site, and increased inter-brood competition as plover are forced out of the construction area into the territories of other plover. Least Tern and American Oystercatcher are not expected to be impacted by the project. Sea Turtles are not expected to be impacted by the project.

(7) *Other Wildlife* - It is expected that the storm damaged, low-lying area will develop into a foraging area for shorebirds. Filling of the low-lying area will cause shorebirds to lose a foraging area. Foraging habitat is expected to be abundant elsewhere on the island, including on the lee side of the placement area. Impacts to wildlife other than shorebirds are expected to be nonsignificant as the placement area has limited habitat value.

(8) *Actions to Minimize Impact* - Several mitigation measures are being considered to minimize risk of disturbing plover nests or crushing flightless chicks. If the U.S. Fish and Wildlife Service and National Park Service determine that plover use of the area is substantial (i.e., active nests, heavy foraging activity) the project will be postponed until such time as risk of substantial detrimental impacts to plovers is past. If, as is expected, no active plover nests occur in the proposed project vicinity and the value of the area as plover foraging habitat is not significant, but the project is constructed when flightless plover chicks are in the vicinity (possible through the end of August), then plover chicks may be ushered out of the project area and subsequently excluded with a silt fence. In this case, a plover monitor will ensure that no flightless chicks re-enter the site. Vehicle transits to and from the construction site will be kept to a minimum and all vehicles will be accompanied by a plover monitor. If nests occur in the project area but it is determined that construction can safely proceed, then nest(s) will be protected through implementation of a buffer zone of at least 100 m around each nest within which construction activity will be restricted. Impact minimization measures are being carefully coordinated with the U.S. Fish and Wildlife Service, National Park Service, and Md. Dept. of Natural Resources.

To prevent entrainment of sea turtles in the dredge, each dredge will be equipped with a WES designed turtle excluder device and dredge crews will be trained to properly deploy and utilize the deflectors. Observers approved by the National Marine Fisheries Service (NMFS) will determine

whether these measures are effective by checking for sea turtle remains in the dredging gear. If incidental take of sea turtles exceeds the limit set for the project by NMFS, then dredging may be halted and further consultation will be undertaken with NMFS to determine how to protect sea turtles. To prevent whale-strikes an observer on the dredge will scan for whales. Coordination with the NMFS has indicated that with the above safeguards, significant adverse impacts to sea turtles and mammals are unlikely.

f. Proposed Disposal Site Determinations

(1) *Mixing Zone Determination* - Not applicable.

(2) *Determination of Compliance with Applicable Water Quality Standards* - Construction activities will be conducted in accordance with all applicable state water quality standards.

(3) *Potential Effects on Human Use Characteristic*

(a) Municipal and Private Water Supply - Not applicable.

(b) Recreational and Commercial Fisheries - Dredge may interrupt and interfere with commercial and recreational fishing efforts on Great Gull Bank. The project will be undertaken during peak recreational fishing season. Minor short-term negative indirect impact to commercial fishery at Great Gull Bank anticipated during dredging following loss of benthos and minor foodweb impacts. Benthic fauna at borrow sites are expected to recover within several months to a year following dredging. No impact to fisheries are expected from placement of material on Assateague.

(c) Water Related Recreation - Project will temporarily cause loss of beach-use during project construction. Longer-term positive impact expected for beach-goers as project will reduce the likelihood of a breach and allow for maintenance of access to Assateague Island by pedestrians.

(d) Aesthetics - A temporary and minor reduction in aesthetic value within the area of construction is expected to occur during placement and shaping of fill on Assateague Island. The beach repair will conform to the aesthetic conditions that make the area a tourist attraction.

(e) Parks, National and Historical Monuments, National Seashores, Wilderness Areas, Research Sites, and Similar Preserves - A fish haven is located on Great Gull Bank, but no dredging will occur within the area and no impacts are expected. The project has been fully coordinated with the National Park Service and Md. DNR.

g. Determination of Cumulative Effects on the Aquatic Ecosystem - This project, in conjunction with the proposed Short- and Long-term Restoration actions will facilitate continued maintenance of Assateague as an undeveloped barrier island by the National Park Service. The project will contribute incrementally to the loss of offshore shoals on the U.S. inner continental shelf. Consumption of sand from offshore shoals is occurring on a large scale along the U.S. Atlantic Coast. Although the offshore shoals are actively being modified by waves and currents, they are relict features which formed at times of lower sea level. As such, once lost, they are not expected to be replaced by natural processes. Cumulative environmental impacts of this loss are not known, however probable long-term detrimental impacts to finfish are expected since loss of offshore shoals will reduce habitat diversity on the U.S. inner continental shelf.

h. Determinations of Secondary Effects on the Aquatic Ecosystem - Indirect effects resulting from the project have been discussed previously in this analysis under each category. No significant detrimental secondary effects are anticipated.

III. Finding of Compliance

a. Adaptation of the Section 404(b)(1) Guidelines to This Evaluation - No adaptations of the Guidelines were made relative to this Evaluation.

b. Evaluation of Availability of Practicable Alternatives to the Proposed Discharge Site Which Would Have Less Adverse Impact on the Aquatic Ecosystem. - The project is by its nature water-dependent and will require activity within the aquatic realm. Failing to restore the lost volume of sand, and allowing a breach to occur prior to implementation of the long-term restoration would have less impact on the aquatic ecosystem, but this option could further threaten the geological integrity of the island if a breach occurs. Impacts to Piping Plover and other rare bird species could be completely avoided if the project were constructed in late August rather than July. Constructing the project in the late fall or winter would greatly reduce impacts to recreational fisheries. However, the emergency nature of the project requires implementation as soon as possible.

c. Compliance With Applicable State Water Quality Standards. - The proposed placement of fill material will be in compliance with Maryland state water quality standards.

d. Compliance With Applicable Toxic Effluent Standard or Prohibition Under Section 307 of the Clean Water Act. - The proposed fill material is not anticipated to violate the Toxic Effluent Standard of Section 307 of the Clean Water Act.

e. Compliance With Endangered Species Act of 1973 - The project will comply with provisions of the Endangered Species Act of 1973 appropriate for emergency actions. With appropriate mitigation measures implemented, the project will not detrimentally impact plover habitat nor jeopardize continued survival of the species. The project is expected to fully comply with the ESA with regard to sea turtles and whales.

f. Compliance With Specified Protection Measures for Marine Sanctuaries Designated by the Marine Protection, Research, and Sanctuaries Act of 1972 - No Marine Sanctuaries, as designated in the Marine Protection, Research, and Sanctuaries Act of 1972, are located within the study area.

g. Evaluation of Extent of Degradation of Waters of the United States - The proposed placement of fill material will not result in significant adverse impacts on human health and welfare, including municipal and private water supplies, recreation and commercial fishing, plankton, fish and shellfish, wildlife, and special aquatic sites. The life stages of aquatic life and wildlife will not be significantly adversely affected. Significant adverse impacts on aquatic ecosystem diversity, productivity and stability, and recreation, aesthetics and economic values will not occur as a result of the project.

h. Appropriate and Practicable Steps Taken to Minimize Potential Adverse Impacts of the Discharge on the Aquatic Ecosystem - The project design will restore pre-storm conditions on the island. Deployment and modification of dredging equipment and employing spotters will minimize risk of detrimental impacts to marine rare species. Construction methods and monitors

for Piping Plover will reduce impacts to this species. Once completed, the constructed berm is expected to mimic the natural condition of the barrier island.

i. On the basis of the guidelines, the proposed discharge site for the material is specified as complying with the inclusion of appropriate and practical conditions to minimize pollution or adverse effects on the aquatic ecosystem.

ANNEX B

Compliance of the Proposed Action With Environmental Protection Statutes and Other Environmental Requirements.

<u>Federal Statutes</u>	<u>Level of compliance₁</u>
Anadromous Fish Conservation Act	N/A
Archeological and Historic Preservation Act	Full
Clean Air Act	Full
Clean Water Act	Full ₂
Coastal Barrier Resources Act	Full
Coastal Zone Management Act	Full ₂
Comprehensive Environmental Response, Compensation and Liability Act	N/A
Endangered Species Act	Full
Estuary Protection Act	N/A
Farmland Protection Policy Act	N/A
Federal Water Project Recreation Act	N/A
Fish and Wildlife Coordination Act	Full
Land and Water Conservation Fund Act	N/A
Magnuson Fishery Conservation and Management Act	Full
Marine Mammal Protection Act	Full
Marine Protection, Research, and Sanctuaries Act	N/A
National Historic Preservation Act	Full
National Environmental Policy Act	Full
Outer Continental Shelf Lands Act (OCSLA)	Full
Resource Conservation and Recovery Act	N/A
Rivers and Harbors Act	N/A
Submerged Land Act	Full
Water Resources Planning Act	Full
Watershed Protection and Flood Prevention Act	Full
Wild and Scenic Rivers Act	N/A
Executive Orders, Memoranda, etc.	
Protection and Enhancement of Environmental Quality(E.O 11514,1977)	Full
Environmental Justice (E.O. 12898)	Full
Protection and Enhancement of Cultural Environment (E.O.11593)	N/A
Floodplain Management (E.O. 11988)	N/A
Protection of Wetlands (E.O. 11990)	Full
Prime and Unique Farmlands (CEQ Memorandum, 11 Aug 80)	N/A
40 CFR 122.26 (B)(14), 19 Nov 1990	N/A

1 Levels of Compliance

- a. Full Compliance: having met all requirements of the statute, E.O. or other environmental requirements for the current stage of planning.
- b. Partial Compliance: not having met some of the requirements that normally are met in the current stage of planning.
- c. Non-Compliance: violation of a requirement of the Statute, E.O. or other environmental requirement.
- d. Not-Applicable: no requirements for the statute, E.O. or other environmental requirement for the current stage of planning.

2 Compliance will be complete after the State of Maryland issues water quality certificate.

3 Compliance will be complete after written concurrence is received from the U.S. FWS and NMFS.

ANNEX C

SUMMARY OF COORDINATION

Person Contacted	Organization	Date	Summary	Mode of Contact
Anne Hecht	U.S. Fish and Wildlife Service	3/23/98	Discussed Piping Plover impact mitigation measures and monitoring requirements for emergency action. Would expect to require minimum 100 m buffer between operations and plovers. Better to wait until August to avoid plover impacts.	Telephone Conversation
John Nichols	National Marine Fisheries Service	3/27/98	Endangered Species Act issues focused on sea turtles foremost concern. Comments contained in 12/31/97 FAX regarding Breach Contingency Plan valid. Need to monitor removal of sand from Great Gull Bank	Telephone Conversation
Steve Doctor	Md. Dept. of Natural Resources	3/30/98	Great Gull Bank is major staging area for horseshoe crabs from May through June. To avoid recreational/ commercial fishery impacts best months for work are Nov. - March.	Telephone Conversation
Darlene Wells	Md. Geological Survey	3/31/98	Storm impacts caused sand to be lost to the system. Will have to be replenished by longshore rather than cross-shore transport.	E-mail
Dave Brinker	Md. Dept. of Natural Resources	3/98	Discussed likely behavior of plovers on Assateague this year in light of changes in island condition following January and February 1998 Nor'easters.	Telephone Conversation
James Mathias	Ocean City	4/6/98	Supports need for emergency restoration of Assateague Island.	Letter
Carl Zimmerman	National Park Service	4/6/98	Discussed plover monitoring program.	Telephone Conversation
John Wolflin	U.S. Fish and Wildlife Service	4/8/98	Opposed to any work prior to July 15 th to protect Piping Plover. Any work prior to Sept. 1 will require mitigation measures and monitoring.	Letter
Ilia Fehrer	Worcester Environmental Trust	4/14/98	Request a public hearing to further consider the emergency action, and proposed short- and long-term restoration projects.	Letter
Sue Langley	Md. Dept. of Housing and Community Development	4/14/98	Expects no impact to cultural resources, but would like to have a representative present in case unanticipated resources are recovered.	Letter
Barry Drucker	Minerals Management Service	4/14/98	Review of recent coordination between Corps and MMS regarding proposed emergency action.	Letter

Hugh Cropper	Citizen	4/15/98	Opposes emergency action.	Letter
J.L. Hearn	Md. Dept. of the Environment	4/16/98	MDE is coordinating with resource agencies regarding issuance of Water Quality Certificate for proposed emergency action.	Letter
Dave Brinker	Md. Dept. of Natural Resources	4/22/98	Expect foraging habitat to be abundant this year for plover. Hire plover monitor for project ASAP, should start work in May or June. Expects noise disturbance and gull predation risks to be low. Need project construction information ASAP	Telephone Conversation
Ray Dintaman, Jr.	Md. Dept. of Natural Resources	4/22/98	Concurs with need for emergency action. Concerned over plover impacts. Provided point of contact.	Letter
John Nichols	National Marine Fisheries Service	4/24/98	Biological Opinion amendment will have updated specific dredging measures to protect sea turtles. Dredge in areas where sand is coarse to avoid entraining foraging sea turtles.	Telephone Conversation
John Nichols	National Marine Fisheries Service	4/30/98	Provided John with draft dredging plan for review.	Mailing
George Ruddy	U.S. Fish and Wildlife Service	4/30/98	Provided John with draft dredging plan for review.	Mailing
Andy Moser	U.S. Fish and Wildlife Service	5/1/98	Discussed potential plover mitigation measures.	Telephone Conversation
Anne Hecht	U.S. Fish and Wildlife Service	5/4/98	Discussed potential plover mitigation measures. Natural recovery of island could increase risk of detrimental plover impacts of emergency project.	Telephone Conversation
Dave Brinker	Md. Dept. of Natural Resources	5/4/98	Discussed Least Terns and American Oystercatcher. Both nest north of emergency action area and neither species should be detrimentally impacted by project.	Telephone Conversation
Carl Zimmerman	National Park Service	5/5/98	Provided update on white tiger beetles.	E-mail
Anne Hecht	U.S. Fish and Wildlife Service	5/5/98	Plovers are nesting in proposed project vicinity. Unclear on impacts to proposed action, but to be prudent, postpone project into August.	Telephone Conversation
Anne Hecht	U.S. Fish and Wildlife Service	5/5/98	E-mailed update on plover nesting. 5 nests are in project vicinity, out of 11 so far on island.	E-mail
George Ruddy	U.S. Fish and Wildlife Service	5/5/98	Proposed dredging plan is acceptable. Check with geologists for short-term restoration.	Telephone Conversation

John Nichols	National Marine Fisheries Service	5/8/98	Proposed dredging plan may allow dredging in areas of >25% fine-grained sediment. Provide core log data to confirm grain-size for review. Or, dredge closer to crest. Need long-term monitoring of Great Gull Bank to evaluate impacts.	Telephone Conversation

Piping Plover Coordination Summary

- March 23, 1998 - Phone Conservation between Chris Spaur, Planning Division and Anne Hecht, U S. Fish and Wildlife Service
 - ♦ **discussed Piping Plover impact mitigation measures and monitoring requirements for emergency action.**
 - ♦ **suggested a 100m buffer between operations and plovers.**
 - ♦ **suggested waiting until August before commencing actions.**
- March 1998: Phone Conservation between Chris Spaur and Dave Brinker, Maryland Department of Natural Resources - discussed likely behavior of plovers on Assateague Island in light of changes in island condition due to recent storm activity.
- April 2, 1998: Coordination Letters to Mr. Timothy Goodger, National Marine Fisheries Service, and to Mr. John Wolflin, Fish and Wildlife Service
- April 3, 1998: Sent out 446 copies of Public Notice regarding the proposed Assateague Island Emergency Restoration Action.
- April 6, 1998: Phone Conservation with Carl Zimmerman, National Park Service, Assateague Island - **discussed need for plover monitoring program**
- April 8, 1998: Letter received from U. S. Department of Interior, Fish and Wildlife Service.
 - ♦ **opposes any construction work on the north end of Assateague Island prior to July 15.**
 - ♦ **impacts of any work between July 15 and September 1 will require intensive Plover monitoring.**
 - ♦ **require that construction activities occur outside of buffer areas to protect plovers present during this period**
- April 22, 1998: Letter received from Maryland Department of Natural Resources
 - ♦ **concurs with need for emergency action**
 - ♦ **requests that DNR be consulted to minimize impacts to Piping Plover**
 - ♦ **identified Mr. Scott A. Smith as contact .**
- April 22, 1998: Phone Conservation between Chris Spaur and Dave Brinker, Maryland Department of Natural Resources
 - ♦ **construction equipment access should be from ocean or McCabes Rd.**
 - ♦ **recommends hiring plover monitor ASAP to ensure proper training**
 - ♦ **would like to see additional project information, footprint, staging areas, pipeline location.**
 - ♦

April 24, 1998: Memorandum for the Record - Meeting Minutes from Sand Placement and Piping Plover Concerns, held April 21, 1998.

- **Andy Moser, Carl Zimmerman, and Dave Brinker provided overview of specific concerns for Piping Plovers.**
 - **noise disturbance not a concern**
 - **by August 1, 90% of chicks should be able to fly, reducing potential impacts**
 - **potential 100m buffer requirement around nests and foraging systems**
 - **silt fence could potentially keep flightless chicks out of construction area**
 - **construction could be completed in stages to mitigate impacts**
 - **vehicular traffic to and from construction zone a concern, could crush flightless chicks**
 - **Andy Moser said that the USFWS would expedite Section 7 Consultation**
- May 1, 1998: Email from Andy Moser, U. S. Fish and Wildlife Service
 - **indicated that July 15 was the earliest start date that could avoid severe adverse effects on plovers (with appropriate mitigation measures), however August 1st would be preferable, and after August 15th would be best.**
 - **need to prepare a Biological Assessment, but it need not be as comprehensive as the previous BA for the long and short-term projects.**
- May 1, 1998: Email from Shanna Ramsey, National Park Service
 - **update of Plover nesting activity. Currently, 5 of 11 nests between km 6.0 - 7.5 within the emergency project area**
- May 1, 1998: Phone Conservation between Chris Spaur and Andy Moser, U. S. Fish and Wildlife Service
 - **for exclusion fence to be acceptable need to know area isn't important plover foraging habitat setback from ocean**
 - **not clear whether assumption that habitat to south will be poor for nesting is valid, thus potential mitigation measure of constructing south to north may or may not be viable.**
 - **still struggling to develop acceptable mitigation measures that protect plover.**
 - **prefer waiting until August 15 to initiate construction**
 - **waiting until after August 15th would eliminate need to impose mitigation measures on project, and will obviate need to require preparation of Biological Assessment**
- May 4, 1998: Phone Conservation between Chris Spaur and Dave Brinker, Maryland Department of Natural Resources
 - **discussion of Plover nesting habits.**

- May 4, 1998: Phone Conservation between Chris Spaur and Anne Hecht, U. S. Fish and Wildlife Service
 - ♦ **fence is questionable idea, has not been allowed as mitigation measure in cases elsewhere where rare beach-nesting birds were concern.**
- May 5, 1998: Phone Conservation between Chris Spaur and Anne Hecht, U. S. Fish and Wildlife Service
 - ♦ **discussion of Plover nesting habits**
- May 8, 1998: Email from Andy Moser, Fish and Wildlife Service
 - ♦ **fencing might not be effective.**
 - ♦ **require accurate elevation basemap be provided in order to accurately assess the situation.**
 - ♦ **vehicular traffic to and from construction site during night poses unacceptable risk of crushing flightless chicks.**



UNITED STATES DEPARTMENT OF COMMERCE
National Oceanic and Atmospheric Administration
NATIONAL MARINE FISHERIES SERVICE
Northeast Region
Habitat & Protected Resources Division
904 South Morris St.
Oxford, MD 21654
FAX (410) 226-5417 Comm. (410) 226-5771

FAX TRANSMITTAL

TO:

Chris Spaw

LOCATION:

Planning Division

NUMBER:

(410) 962-6034

FROM:

John Nichols

Number of pages (3) including transmittal

*ESA comments on this proposal must be
reviewed & signed by our Regional office.*

DRAFT





UNITED STATES DEPARTMENT OF COMMERCE
National Oceanic and Atmospheric Administration
NATIONAL MARINE FISHERIES SERVICE
Habitat Conservation Division
Oxford, Maryland 21654

January 2, 1998

Dr. James F. Johnson
Chief, Planning Division
Baltimore District, Corps Of Engineers
P.O. Box 1715
Baltimore, Maryland 21203

Attn: Christopher Spaur, Planning Division

Dear Dr. Johnson:

This pertains to the proposed Breach Contingency Plan, dated December 1997, for Assateague Island, Worcester County, Maryland. The latter plan is an amendment to the Assateague Island Long Term Sand Management Plan of the Ocean City Water Resources Feasibility Study.

Given the importance of the north end of Assateague Island in shaping and protecting estuarine habitats associated with Sinepuxent Bay, we do not oppose plans for immediate repair of breaches that may form along the north end during upcoming storm events. However, an emergency breach repair operation should be conducted in a manner that will minimize impacts to fish resources and their associated habitats. In general, if a breach occurs, an ocean source of borrow material will be preferred from an ecological standpoint, and will result in a lesser degree of impacts to fish resources. Estuarine resources and habitats within Sinepuxent Bay are more vulnerable to impacts from dredging activity. Therefore, caution should be used in selecting sources of repair material located within the latter coastal embayment, such as overwash deposits in the vicinity of a breach.

Extensive beds of eelgrass (Zostera marina) and widgeon grass (Ruppia maritima) occur along the landward side of Assateague Island. Beds lying along the path of a breach or overwash site would be destroyed or disrupted from sediment deposition and local hydrologic changes. However, disturbance to beds could be further compounded by borrow actions that extend into adjacent undisturbed areas to obtain repair material. If overwash deposits are to be used for repair purposes, the lateral and vertical extent of these deposits should be clearly demarcated prior to borrow actions. Borrow actions should be limited only to zones of mapped breach deposition, should dredge only surficial sediments, and should leave borrow areas with bathymetric and sedimentary conditions similar to those occurring prior to the breach. Furthermore, if borrow actions must occur during the submerged grass growing season (April 1 to October 15), and the period of



entry and settlement of young-of-the-year summer flounder (Paralichthys dentatus) in the coastal bays (generally the spring months), Best Management Practices (e.g., silt curtains) should be used around borrow areas to minimize movement of resuspended sediments into adjacent grass beds and subtidal flats.

Borrow from the Sinepuxent Bay Federal navigation channel is least preferred from a fisheries perspective. Based on existing grain size analysis data, sediment composition within the channel does not appear to be suitable for breach repair. Furthermore, dredging of finer grain material within the channel will result in a greater degree of sediment re-suspension and drift into adjacent areas, which will exacerbate affects on local submerged grass beds and newly settled young-of-the-year summer flounder if borrow actions must occur during the period April 1 to October 15.

If there are any questions concerning these comments, you may call John S. Nichols at (410) 226-5771.

Sincerely,

Timothy E. Goodger
Officer in Charge
Oxford Habitat Office



REPLY TO
ATTENTION OF

CENAB-CO-M

DEPARTMENT OF THE ARMY
BALTIMORE DISTRICT, U.S. ARMY CORPS OF ENGINEERS
P.O. BOX 1715
BALTIMORE, MD 21203-1715

cf. LHM
Devel. Board
Harvey - 10/20
Pete
27 March 1998

MEMORANDUM FOR Commander, North Atlantic Division

SUBJECT: Emergency Assistance for Assateague Island and Atlantic Coast of Maryland Protection Project (Ocean City, MD)

1. References:

a. Memorandum, Acting Assistant Secretary of the Army (Civil Works), 17 February 1998, Assateague Island.

b. Letter, Governor of the State of Maryland, March 13, 1998, Request for emergency assistance for Assateague Island and Atlantic Coast of Maryland Shoreline Protection Project (Ocean City, MD).

2. The current conditions on Assateague Island are such that it is extremely vulnerable to future storm erosion and breaching. The significant potential impact of damage to residential areas in the Back Bay and severe environmental degradation to the National Seashore and this critical barrier island requires an immediate response. My request for \$3.2 million under PL 84-99 to place 320,000 cubic yards of material to construct a berm, 8400 feet long, 100 feet wide to an elevation of 8 feet NGVD is at Enclosure 1.

3. As a result of the recent coastal storms, the hurricane and storm protection features of the Atlantic Coast of Maryland Shoreline Protection Project (Ocean City, MD) were severely damaged, including significant degradation to the design template. My request for \$4.1 million under PL 84-99 to place approximately 600,000 cubic yards to restore the dune and berm to its original, prestorm configuration is at Enclosure 2.

4. The Governor's intent, as outlined in his March 13, 1998 letter, is to provide protection for Assateague Island and Ocean City. I fully support that intent. Further, the district is prepared to respond as directed to protect these valuable resources.

2 Encls As

BRUCE A. BERWICK
Colonel, Corps of Engineers
Commanding



**US Army Corps
of Engineers**
Baltimore District

April 3, 1998

Public Notice

Assateague Island Public Law 84-99 Emergency Response Action Worcester County, Maryland

ALL INTERESTED PARTIES:

The Acting Assistant Secretary for Fish and Wildlife, U. S. Department of the Interior and the Governor of Maryland have requested that the U.S. Army Corps of Engineers undertake emergency repairs to the northern end of Assateague Island under the authority of Public Law 84-99.

Several storms in January and February 1998 have flooded and severely eroded the northern end of Assateague Island National Seashore, creating an extremely low area 1.5 miles long about 3.2 to 4.8 miles south of the Ocean City Inlet. In this area, the island has lost nearly 5 feet of elevation since mid-January, allowing overwash to occur at every high tide. Low beach elevations have increased the danger of a breach to this critical natural habitat area during future storms; such a breach would further expose both the National Seashore and the back bay areas to additional environmental and economic damages.

If the Corps decides to undertake emergency repairs, we would undertake only the measures necessary to restore the island to its pre-storm (mid-January 1998) condition. The proposed emergency plan includes dredging 320,000 cubic yards of material from the Great Gull Bank shoal 3 to 4 miles off Assateague Island and placing it on the island creating a 100-foot wide, 8400-foot long berm, at an elevation of 8.0 feet NGVD with 1-on-10 side slopes. A map showing the location of the berm is attached. If approved, construction will probably take place in late spring or early summer.

Previously, the Corps of Engineers and its partners had developed a short-term restoration plan for Assateague Island. A draft feasibility report and EIS on the short-term plan were issued for review and comment on May 30, 1997. This draft report and EIS are currently being finalized by the Corps of Engineers. Comments received following the public review period are being addressed. There were no major objections to implementing the short-term plan.

Based on comments received on the short-term plan, the major concern with the proposed emergency plan is the impact on the Piping Plover during its nesting season. All other impacts should be similar between the two plans, since the proposed emergency plan discussed above falls within the footprint of the short-term plan, and the same borrow source, Great Gull Bank, is being used. The Corps will be working with the National Park Service and the U.S. Fish and Wildlife Service to avoid or minimize impacts to the threatened Piping Plover during construction of the emergency plan.

The Corps of Engineers will proceed using emergency procedures defined by the Council on Environmental Quality's (CEQ) regulations implementing the provisions of NEPA (40 C.F.R. 1500-1508), Army Corps of Engineers regulations, ER-200-2-2, Procedures for Implementing the National Environmental Policy Act, and ER 500-1-1, Natural Disaster Procedures. We are also preparing an environmental assessment (EA), but it may not be finalized before the emergency response action is initiated. The EA will, however, be completed as expeditiously as possible.

Interested parties who wish to comment on this proposed action or who want to request a public hearing, should provide comments or public hearing requests in writing within 15 days from the date of the publication of this notice to:

Dr. James F. Johnson
Chief, Planning Division
U.S. Army Corps of Engineers
Baltimore District
P.O. Box 1715
Baltimore, Maryland 21205

You may fax your comments to (410) 967-4698 or send them by electronic mail to james.f.johnson@usace.army.mil. Any request for a public hearing must clearly set forth the interest which may be affected and the manner in which the interest may be affected by this activity.

A Water Quality Certification (WQC) is required to be obtained in accordance with Section 401 of the Clean Water Act. The Department of the Army will apply for a WQC from the State of Maryland. Construction will not take place on the subject project until the WQC is obtained. Comments regarding water quality issues should be submitted to the Corps of Engineers, as well as to the Maryland Department of the Environment, at 2500 Broening Highway, Baltimore, Maryland 21224, RE: Assateague Island Emergency Response.

Please bring this notice to the attention of any other organizations or individuals with an interest in this matter.

FOR THE COMMANDER:

DR. JAMES F. JOHNSON
Chief, Planning Division

Enclosure

-



TOWN OF
OCEAN CITY

The White Marlin Capital of the World

Mayor's Office
(410)289-8931

April 6, 1998

Dr. James F. Johnson
Chief, Planning Division
U.S. Army Corps of Engineers, Baltimore District
P.O. Box 1715
Baltimore, MD 21205

RE: Assateague Island Emergency Response Action

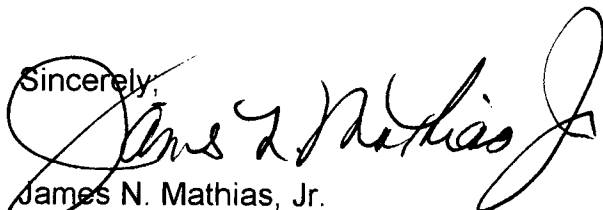
Dear Dr. Johnson:

Thank you for the invitation to comment on the emergency restoration of Assateague Island. As a partner in the Ocean City Water Resource study, which recommended the Assateague Restoration project, the Town is well aware of the extensive research, public input, and hard work which led to the proposed restoration plan.

I had the opportunity to tour Assateague Island from the air immediately after the latest winter storms. The devastation of the park, compared to Ocean City, proves the value of beach renourishment. I was also impressed by the quick response of the Army Corps of Engineers to the storm.

Ocean City recognizes the economic, recreational, cultural and ecological importance of Assateague Island. It is a National treasure, which must be preserved. The Mayor and City Council of Ocean City fully support the proposed emergency restoration of Assateague Island as proposed in the April 1, 1998 Public Notice.

Sincerely,



James N. Mathias, Jr.
Mayor

MAYOR & CITY COUNCIL
P.O. BOX 158
OCEAN CITY,
MARYLAND 21843-0158

410-289-8221

FAX 410-289-7385

<http://www.ococean.com>

MAYOR
JAMES N. MATHIAS, JR.

CITY COUNCIL MEMBERS

RICHARD W. MEEHAN
President

LEE DUGGAN
Secretary

VINCENT GISRIEL, JR.

JAMES S. HALL

NANCY L. HOWARD

WALTER C. MANN

W. GLENN STECKMAN, III

DENNIS W. DARE
City Manager

CAROL L. JACOBS
City Clerk



United States Department of the Interior

FISH AND WILDLIFE SERVICE

Chesapeake Bay Field Office
177 Admiral Cochrane Drive
Annapolis, MD 21401

April 8, 1998

Dr. James F. Johnson
Chief, Planning Division
U.S. Army Corps of Engineers
Baltimore District
P.O. Box 1715
Baltimore, MD 21203-1715

Re: Assateague Island Emergency
Response Action

Dear Dr. Johnson:

This responds to your letter of April 2, 1998, requesting our comments regarding impacts of the proposed emergency project on two Federally threatened species: the piping plover (*Charadrius melodus*) and the seabeach amaranth (*Amaranthus pumilis*). These comments are provided in accordance with Section 7 of the Endangered Species Act (87 Stat. 884, as amended; 16 U.S.C. 1531 et seq.), and should be considered informal consultation since formal consultation has not yet been requested by the Corps. As we have no real concerns regarding impact of this project on the seabeach amaranth, all comments below are focused on impacts to the piping plover.

We understand that the proposed emergency repairs include placing approximately 320,000 cubic yards of sandy material from Great Gull Bank on Assateague Island over an area 8,400 feet in length (between 3.2 and 4.8 miles south of the Ocean City Inlet). According to the public notice, construction will probably take place in late spring or early summer. The placement will occur within a portion of the area previously identified by the Corps for inclusion in their short-term restoration project for Assateague Island. That project was the subject of the Service's May 23, 1997, Biological Opinion regarding impacts on piping plover and seabeach amaranth. One of the nondiscretionary reasonable and prudent measures in that opinion stipulated that construction was NOT to occur from March 15 through September 1, when resident piping plovers were typically present (these dates were reversed in your April 2 letter).

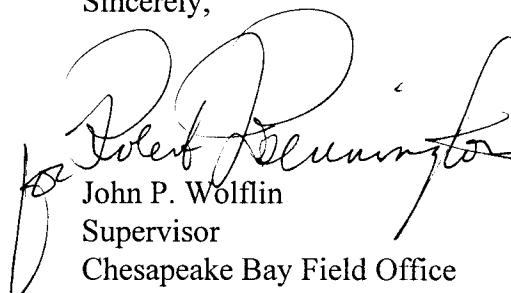
Although we have had some discussions with representatives of the Baltimore Corps concerning initiating repairs prior to September 1 of this year, they have never included the possibility of initiating repair work in "late spring or early summer". The earliest project start date discussed with your staff, based on the presumption that the situation represents a true emergency, was mid-July. Furthermore, the acceptability of a July 15 start date was predicated on incorporation

of critical measures to monitor location of plovers and provide adequate buffers between the birds and construction activities. Given the number of plovers likely to be active in the project area between July 15 and September 1, these requirements could substantially hamper the efficiency of project construction during this time frame. Initiation of the project *prior* to July 15 is likely to have a devastating effect on piping plover reproduction at a site where 60 pairs (60% of the southern recovery unit) bred in 1997.

In summary, because of projected severe adverse effects on piping plover, the Service is opposed to any construction work on the north end of Assateague prior to July 15. Impacts of any work between July 15 and September 1 must be minimized by instituting intensive plover monitoring throughout the work area and keeping construction work out of buffer areas needed to protect those piping plovers present during this period.

If the Corps intends to begin "emergency" work at Assateague Island National Seashore at any time before September 1, formal consultation under Section 7 of the Endangered Species Act will be required prior to initiating any construction work or staging of construction equipment on Assateague beaches. If you have any questions regarding this letter please contact Andy Moser at (410) 573-4537.

Sincerely,



John P. Wolflin
Supervisor
Chesapeake Bay Field Office

cc:

David Brinker, MD Wildlife and Heritage, Catonsville, MD

Carl Zimmerman, Assateague National Seashore, Berlin, MD

Anne Hecht, USFWS, Sudbury, MA



**Maryland
Department of
Housing and
Community
Development**

*Division of Historical and
Cultural Programs*

100 Community Place
Crownsville, Maryland 21032

410-514-7600

1-800-756-0119

Fax: 410-987-4071

Maryland Relay for the Deaf:

1-800-735-2258

<http://www.dhcd.state.md.us>

Parris N. Glendening
Governor

Patricia J. Payne
Secretary

Raymond A. Skinner
Deputy Secretary

April 14, 1998

James F. Johnson, Ph.D.
Chief, Planning Division
U.S. Army corps of Engineers
Baltimore district
P.O. Box 1715
Baltimore, Maryland 21205

Re: Public Law 84-99 Emergency Response Action
Assateague Island, Worcester County, Maryland

Dear Dr. Johnson,

As previous coordination with this office has indicated, it is unlikely the proposed emergency repairs will affect historic resources; Dr. Gary Shaffer of the Office of Preservation Services commented by telephone last week. However, this office requests advance notification of when the repairs will take place so as to have the opportunity to have a representative present in the event of unanticipated finds (36 CFR 800.11).

Also enclosed, for your files, is a copy of the *Agreement to Establish Concurrent Jurisdiction Over Lands Administered by the National Park Service Within the State of Maryland*. Please take this into consideration when compliance issues arise in these areas.

If you have any questions or require further information, please contact me at 410-514-7662; fax 410-987-4071, or via e-mail: langley@dhcd.state.md.us.

Sincerely,

Susan B.M. Langley, Ph.D.
State Underwater Archaeologist

9801096
encl.
/sl

cc. Beth Cole, MHT
Gary Shaffer, MHT
Carl Zimmerman, NPS

AGREEMENT TO ESTABLISH CONCURRENT JURISDICTION
OVER LANDS ADMINISTERED BY THE NATIONAL PARK SERVICE
WITHIN THE STATE OF MARYLAND

WHEREAS, by Act of Congress on October 7, 1976 (90 Stat. 1939; 16 U.S.C. § 1a-3), the United States Department of the Interior is authorized and directed to consummate agreements with each State to the end that the United States shall exercise along with a State concurrent legislative jurisdiction within units of the National Park System located within the State;

WHEREAS, by Act of the General Assembly of Maryland of 1988 (Chapter 386, Laws of Maryland, 1988; State Government Article, § 14-102, Annotated Code of Maryland, 1983 volume; 1993 Cum. Supplement) the Governor of Maryland is authorized to enter into agreement with the United States to establish full or concurrent jurisdiction over any lands in the State of Maryland held by the United States for the purpose of enforcing the civil or criminal laws of the State of Maryland;

WHEREAS, the acquisition by the United States of concurrent legislative jurisdiction over lands of the National Park Service within the State of Maryland will assist in the enforcement of State criminal laws by the United States under the Act of June 25, 1948 (18 U.S.C. § 13);

WHEREAS, establishment of concurrent legislative jurisdiction over specified lands of the National Park Service located within the State of Maryland will allow for more efficient conduct of both State and Federal functions;

RECORDING FEE 2.00
TOTAL 75.00
Rest # 21885
Bk # 365
Ser 06, 1996 09:31 am

RECORD FEE 10 20.00
TOTAL 20.00
Rest # 28254
Bk # 950
Ser 16, 1996 03:28 PM

FILED

SEP 6 9 53 AM '96
CLERK OF THE CIRCUIT COURT
WASHINGTON COUNTY

WHEREAS, it is the intention of this Agreement that the parties herein have ceded, relinquished, and accepted jurisdiction necessary to assure that the State of Maryland and the United States exercise concurrent legislative jurisdiction over the areas described herein.

NOW THEREFORE, in consideration of the mutual promises and undertakings herein set forth, the United States of America, by Bruce Babbitt, Secretary, United States Department of the Interior and the State of Maryland, by William Donald Schaefer, Governor, agree that:

1. The term "concurrent legislative jurisdiction" is intended herein as vesting in the State of Maryland and the United States all the rights accorded a sovereign with the broad qualifications that such authority is held concurrently over matters including but not limited to criminal law, police powers, and tax laws. It is the parallel right of both the State of Maryland and the United States to legislate with respect to such land and persons present or residing on it, subject only to United States and State of Maryland constitutional constraints such as, but not limited to, the supremacy clause of the United States Constitution and the prohibition of taxation of the property of one sovereign by another.

2. The following units of the National Park System in the State of Maryland, with the present jurisdictional status of the units indicated beside each, are presently managed by the National Park Service and are the subject of this transfer of

legislative jurisdiction:

Antietam National Battlefield (Washington County) -
Exclusive and Proprietary (Exhibit 1)

Assateague Island National Seashore (Worcester County)
- Proprietary (Exhibit 2)

Chesapeake and Ohio Canal National Historical Park
(Montgomery, Frederick, Washington, and Allegheny
Counties) - Exclusive and Proprietary (Exhibit 3)

Clara Barton National Historic Site (Montgomery County)
- Proprietary (Exhibit 4)

Fort Foote (Prince George's County) - Exclusive
(Exhibit 5)

Fort McHenry National Monument and Historic Shrine
(Baltimore City) - Exclusive (Exhibit 6)

Fort Washington (Prince George's County) - Exclusive
(Exhibit 7)

Clara Barton Parkway (Montgomery County)
- Exclusive and Proprietary (Exhibit 8)

Hampton National Historical Site (Baltimore County) -
Proprietary (Exhibit 9)

Harmony Hall (Prince George's County) - Exclusive
(Exhibit 10)

Harpers Ferry National Historical Park (Washington
County) - Proprietary (Exhibit 11)

Monocacy National Battlefield (Frederick County) -
Proprietary (Exhibit 12)

Oxon Cove Park (Prince George's County) - Exclusive and
Proprietary (Exhibit 13)

Piscataway Park, including Colonial Farms and Marshall
Hall (Prince George's County) - Proprietary
(Exhibit 14)

Piscataway Park (Charles County) - Proprietary
(Exhibit 15)

Thomas Stone National Historic Site (Charles County) -
Proprietary (Exhibit 16)

Baltimore-Washington Parkway (Anne Arundel County) -

Exclusive (Exhibit 17)

Each area is specifically described in Exhibits 1 through 17, enclosed herewith.

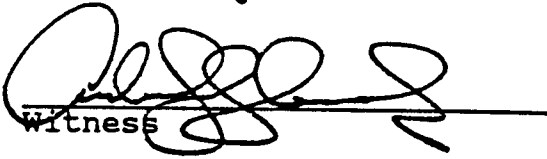
3. The United States hereby retrocedes and relinquishes to the State of Maryland, and accepts from the State of Maryland, such measure of legislative jurisdiction both civil and criminal as is necessary to establish concurrent legislative jurisdiction between the State of Maryland and the United States over all lands, subaqueous lands and waters comprising the units of the National Park System in the State of Maryland described above.

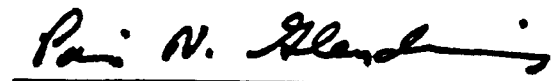
4. The State of Maryland hereby cedes concurrent jurisdiction to the United States over the areas described above wherein the United States was vested with proprietary jurisdiction, and accepts the cession of concurrent legislative jurisdiction and relinquishment of exclusive jurisdiction from the United States over all areas wherein in the United States was vested with exclusive jurisdiction.

5. The United States will be responsible to assure that copies of this Agreement and the pertinent exhibits enclosed hereto are recorded among the land records of the appropriate counties.

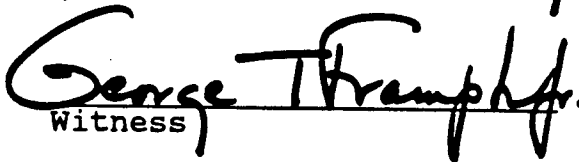
6. The establishment of concurrent jurisdiction pursuant to this Agreement shall become effective at 12:01 a.m. of the day following the later of the two dates of execution witnessed below.

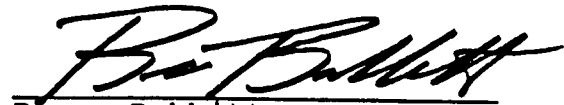
Executed on behalf on the State of Maryland this 19th
day of June, 1996:


Witness


Parris N. Glendening
Governor

4th Executed on behalf of the United States of America this
day of January, 1995:


Witness


Bruce Babbitt
Secretary of the Interior



01289 00546

LIBER 2311 FOLIO 073

CLERK OF THE CIRCUIT COURT
WASHINGTON COUNTY

United States Department of the Interior

Mail to: NATIONAL PARK SERVICE
National Capital Region
Catoctin Mountain Park
6602 Foxville Road
Thurmont, MD 21788

All numerated exhibits are to be recorded among the plat records of the respective counties and Baltimore City. Please see the plat records of the aforementioned counties and Baltimore City.



I HEREBY CERTIFY, that this is a true copy of one of the records of Washington County, Maryland, having been recorded in

Land Record Liber 1289, folio 540.
in the Office of the Clerk of the Circuit Court. In Testimony whereof I hereunto subscribe my name and affix the Seal of the Circuit Court For Washington County, Maryland, this

19th

day of

August

19⁹⁶

Dennis J. Weaver, Clerk of the Circuit Court for
Washington County, Maryland

IN REPLY REFER TO:



LL422 (ML)
ASIS

NATIONAL PARK SERVICE

NORTHEAST REGION
143 SOUTH THIRD STREET
PHILADELPHIA, PA. 19106

April 13, 1973

1	Superintendent	
	Admin Officer	
2	Ch. Operations	EW
	Ch. Park Naturalist	
	Ch. Ranger	
	Ch. Maintenance	
	Supr Pk Rgr (Md)	
	Supr Pk Rgr (Va)	
3	Land Acq Officer	Copy

Memorandum

To: Chief, Branch of Coordination & Control, WASO
From: Acting Chief, Office of Land Acquisition, NERO
Subject: Boundary Map, Assateague Island National Seashore
Enclosed, for publication in the Federal Register, is a copy of
the approved boundary map.

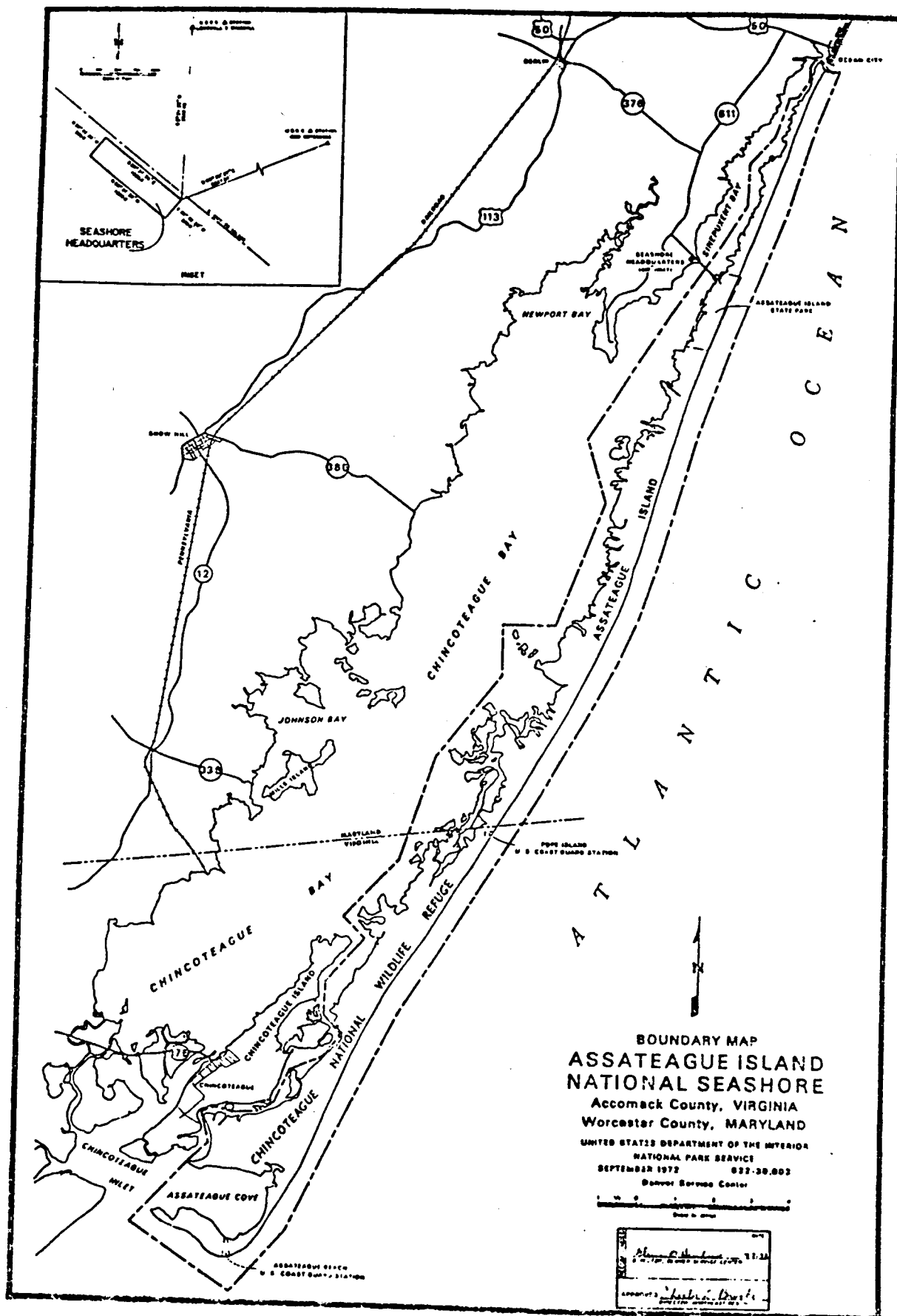
SIGNED

Thomas R. Coleman

Enclosure

cc:
Supt., ASIS w/c encl. ✓
LAO., ASIS w/c encl.





ASSATEAGUE ISLAND NATIONAL SEASHORE
DESCRIPTION OF NATIONAL SEASHORE BOUNDARY
STATE OF MARYLAND

The said National Seashore situate, lying and being in the 10th election district of Worcester County, and State of Maryland, and more particularly described as follows:

The National Seashore Boundary as designated on a map entitled "Department of the Interior - National Park Service - National Seashore Boundary, Contract No. 14-10-7-993-13, Assateague Island National Seashore", Knoerle, Bender, Stone & Associates, Inc., Consulting Engineers; and Quinn and Associates, Photogrammetric Engineers and Land Surveyors; Scale 1"=4,000'.

Beginning at a monument on the Maryland-Virginia Line, said monument being designated by the number (1) on said map and having Maryland State Plane Coordinates of N.75,354.04, and E.1,305,145.02, and said monument also having Virginia State Plane Coordinates of N.632,781.34, and E.2,937,069.93; thence N.82°-59'-40"E., along the Maryland-Virginia Line, a distance of 4,493.76 feet to a point number (2), said point having Maryland State Plane Coordinates of N.75,902.10, and E.1,309,605.23; thence N.30°-18'-05"E., a distance of 4,746.34 feet, to a point number (3), said point having Maryland State Plane Coordinates of N.80,000.00, and E.1,312,000.00; thence No.28°-36'-38"E., a distance of 12,529.96 feet to point number (4), said point having Maryland State Plane Coordinates of N.91,000.00, and E.1,318,000.00; thence N.26°-33'-54"E., a distance of 8,944.27 feet to point number (5), said point having Maryland State Plane Coordinates of N.99,000.00, and E.1,322,000.00; thence N.21°-48'-05"E., a distance of 7,000.71 feet to point number (6), said point having Maryland State Plane Coordinates of N.105,500.00, and E.1,324,600.00; thence N.17°-04'-26"E., a distance of 7,322.74 feet to point number (7), said point having Maryland State Plane Coordinates of N.112,500.00, and E.1,326,750.00; thence N.14°-02'-10"E., a distance of 19,997.06 feet to point number (8), said point having Maryland State Plane Coordinates of N.131,900.00, and E.1,331,600.00; thence N.18°-04'-06"E., a distance of 14,831.39 feet to point number (9), said point having Maryland State Plane Coordinates of N.146,000.00, and E.1,336,200.00; thence N.20°-26'-58"E., a distance of 18,890.47 feet to point number (10), said point having Maryland State Plane Coordinates of N.163,700.00, and E.1,342,800.00; thence N.14°-41'-50"E., a distance of 12,612.69 feet to point number (11), said point having Maryland State Plane Coordinates of N.175,900.00, and E.1,346,000.00; thence N.20°-19'-23"E., a distance of 8,637.71 feet to point number (12), said point having Maryland State Plane Coordinates of N.184,000.00, and E.1,349,000.00; thence S.75°-57'-50"W., a distance of 824.62 feet to point number (13), said point having Maryland State Plane Coordinates of N.183,800.00, and E.1,348,200.00; thence N.56°-18'-36"W., a distance of 1,081.67 feet to point number (14), said point having Maryland State Plane Coordinates of N.184,400.00, and E.1,347,300.00; thence N.40°-09'-56"W., a distance of 1,426.36 feet to point number (15), said point having Maryland State Plane Coordinates of N.185,490.00, and E.1,346,380.00; thence N.86°-33'-09"W., a distance of 415.75 feet to point number (16), said point having Maryland State Plane Coordinates of N.185,515.00, and E.1,345,965.00; thence S.36°-27'-22"W., a distance of 1,523.04 feet to point number (17), said point having Maryland State Plane Coordinates of N.184,290.00, and E.1,345,060.00; thence S.05°-06'-28"W., a distance of 1,797.14 feet to point number (18), said point having Maryland State Plane Coordinates of N.182,500.00, and E.1,344,900.00; thence S.30°-57'-50"W., a distance of 2,915.48 feet to point number (19), said point having Maryland State Plane Coordinates of N.180,000.00, and E.1,343,400.00; thence S.81°-15'-14"W., a distance of 1,315.29 feet to point number (20),

LIBER 2311 ROLLO 077

said point having Maryland State Plane Coordinates of N.179,800.00, and E.1,342,100.00; thence S.17°-10'-33"W., a distance of 5,756.74 feet to point number (21), said point having Maryland State Plane Coordinates of N.174,300.00, and E.1,340,400.00; thence S.67°-31'-14"W., a distance of 3,138.47 feet to point number (22), said point having Maryland State Plane Coordinates of N.173,100.00, and E.1,337,500.00; thence S.21°-30'-05"W., a distance of 3,546.83 feet to point number (23), said point having Maryland State Plane Coordinates of N.169,800.00, and E.1,336,200.00; thence S.01°-16'-23"E., a distance of 4,501.11 feet to point number (24), said point having Maryland State Plane Coordinates of N.165,300.00, and E.1,336,300.00; thence S.22°-06'-34"W., a distance of 6,907.97 feet to point number (25), said point having Maryland State Plane Coordinates of N.158,900.00, and E.1,333,700.00; thence S.33°-01'-26"W., a distance of 11,926.86 feet to point number (26), said point having Maryland State Plane Coordinates of N.148,900.00, and E.1,327,200.00; thence S.30°-10'-25"W., a distance of 9,947.86 feet to point number (27), said point having Maryland State Plane Coordinates of N.140,300.00, and E.1,322,200.00; thence S.40°-27'-44"W., a distance of 13,406.34 feet to point number (28), said point having Maryland State Plane Coordinates of N.130,100.00, and E.1,313,500.00; thence S.00°-35'-05"E., a distance of 19,601.02 feet to point number (29), said point having Maryland State Plane Coordinates of N.110,500.00, and E.1,313,700.00; thence S.45°00'-00"W., a distance of 9,758.07 feet to point number (30), said point having Maryland State Plane Coordinates of N.103,600.00, and E.1,306,800.00; thence S.28°-54'-33"W., a distance of 15,307.51 feet to point number (31), said point having Maryland State Plane Coordinates of N.90,200.00, and E.1,299,400.00; thence S.18°-06'-47"W., a distance of 11,257.89 feet to point number (32), said point having Maryland State Plane Coordinates of N.79,500.00, and E.1,295,900.00; thence S.31°-13'-32"W., a distance of 6,673.92 feet to point number (33), said point having Maryland State Plane Coordinates of N.73,729.91, and E.1,292,440.18, said point number (33) being on the Maryland-Virginia Line; thence N.82°-59'-40"E., along the last-mentioned line, a distance of 11,954.54 feet to a monument, said monument being designated by the number (34) on said map, and having Maryland State Plane Coordinates of N.75,250.88, and E.1,304,305.48; thence N.82°-59'-40"E., along the Maryland-Virginia Line, a distance of 845.86 feet to the point of beginning.

SEP 6 1996

The foregoing instrument
filed for record and is accordingly recorded
among the land records of Worcester County,
Maryland.

Richard H. Dutton Clerk

State Of Maryland, Worcester County, To Wit:

I, Richard H. Outten, Clerk of the Circuit Court for Worcester County, State of Maryland, hereby
certify that the foregoing is a true and correct copy of ...Agreement.....
filed for record on the ...6th... day of ...September..... 19 96..... and
recorded in Liber ...R.H.O...... No. ...2311..... Folios ...67 thru 77.....
..... one of the records of the Clerk of the Circuit Court
for Worcester County.



IN TESTIMONY WHEREOF, I hereunto set my
hand and affix the Seal of the Circuit Court for

Worcester County, State of Maryland, this

...6th... day of September.....

A.D., 19 96.....

Richard H. Outten

Richard H. Outten
Clerk of the Circuit Court for
Worcester County, Maryland



Worcester Environmental Trust

A COUNTY COMMITTEE OF THE MARYLAND ENVIRONMENTAL TRUST

POST OFFICE BOX 38
SNOW HILL, MARYLAND 21863
410-632-2840



April 14, 1998

Dr. James F. Johnson
Chief, Planning Division
U. S. Army Corps of Engineers
Baltimore District
P. O. Box 1715
Baltimore, MD 21205

Dear Dr. Johnson,

The Worcester Environmental Trust requests a public hearing on the Draft Environmental Impact Statement for the Ocean City, Maryland, and Vicinity Water Resources Feasibility Study at Ocean City, in Worcester County, Maryland; and the Assateague Island Public Law 84-99 Emergency Response Action, Worcester County, Maryland.

The public meeting on the above, held on April 8th at the Ocean City Elementary School, only afforded those attending an opportunity to ask questions; Colonel Berwick did not ask for oral comments at the meeting.

We also request that you extend the comment period on the DEIS mentioned above in order that we may inform our members and obtain their comments.

Thank you and best regards.

Sincerely yours,

Ilia J. Fehrer
Chairman

F A C S I M I L E

Name: Dr. James F. Johnson

Organization: USACE
Fax: 410-962-4698
From: Barry S. Drucker
Date: April 14, 1998
Subject: Assateague Island
Pages: 1



Dr. Johnson:

The Minerals Management Service (MMS) has received a copy of the Public Notice on the above referenced subject.

As you are probably aware, the Corps and the Park Service will be working with the MMS towards finalization of a noncompetitive lease to use sand from Great Gull Bank during this emergency procedure. We have been working closely with the Baltimore District during preparation of the EIS and have provided comments and suggestions for incorporation into the document.

In February 1998, we had a telecon with Stacey Marek and other members of the District's staff regarding this emergency action. At that time, we informed Stacey that completion of the lease agreement would be much smoother if the MMS were to be listed as a cooperating agency on the Final EIS. If official procedures are necessary, please inform us.

We understand that the final EIS will likely not be completed before the emergency work has to be done. We have taken the necessary steps to inform the Council on Environmental Quality as to the emergency actions and that the NEPA procedure will likely not be completed prior to the restoration work. We have also informed them that we will be listed as a cooperating agency on the final document and so can be used to support any future requests for sand from Great Gull Bank.

We are ready to work towards preparing and finalizing the lease agreement as expeditiously as possible. Please do not hesitate to call me at 703-787-1300 if you wish to discuss this matter. We have enjoyed immensely working with the District office. My colleague, Roger Amato and I had a very nice and informative conversation with Chris Spaur at the Assateague Shelf and Shore Workshop about a week and a half ago. We look forward to continued cooperation between your office and ours.

Barry Drucker
MMS

International Activities and Marine Minerals Division

*cc to Jim, Scott Johnson, Angie Miggard, Stacey H, DFL, Mark M.
Chris Spaur*

LAW OFFICES

ANDERSON, COE & KING, LLP

ROBERT H. BOUSE, JR.
E. DALE ADKINS, III
JAMES A. ROTHSCHILD
M. BRADLEY HALLWIG
J. MICHAEL SLONEKER
E. PHILIP FRANKE, III
PHILIP C. JACOBSON*
LYNNE B. MALONE
GREGORY L. VANGEISON
BARBARA MCC. STANLEY
MATTHEW T. ANGOTTI
HUGH CROPPER, IV
JAMES S. AIST

*ALSO ADMITTED IN
DISTRICT OF COLUMBIA

WRITER'S FAX: 410-752-_____

SUITE 2000
201 N. CHARLES STREET
BALTIMORE, MARYLAND 21201-4135
TELEPHONE: 410-752-1630
FAX DIRECT DIAL: 410-752-0085

OCEAN CITY OFFICE
P.O. BOX 535
12934 KELLY BRIDGE LANE
OCEAN CITY, MD 21842
TELEPHONE: 410-213-2681
FAX DIRECT DIAL: 410-213-2685

RUSSELL S. WOODWARD
CHARLES I. JOSEPH
NEIL R. LEBOWITZ
ALISON J. MCGRIFF
LAURA L. GREEVES
STACIE FREE FARLEY

G. C. A. ANDERSON
(1898-1985)
WARD B. COE, JR.
(1913-1996)

COUNSEL
FRANK J. VECELLA
JOHN F. KING

April 15, 1998

Dr. James F. Johnson,
Chief, Planning Division
United States Army Corps of Engineers
Baltimore District
Post Office Box 1715
Baltimore, Maryland 21205

RE: Assateague Island Emergency Response Action

Dear Dr. Johnson:

I am a waterfront property owner in Worcester County, Maryland. I own properties on the Sinepuxent Bay, Chincoteague Bay, and Pocomoke River.

I oppose the proposed repairs to the northern end of Assateague Island as described in the Public Notice, Assateague Island, Public Law 84-99, Emergency Response Action, Worcester County, Maryland, for the following reasons.

1. I believe that this barrier island should be subject to the natural processes of erosion and accretion. This process is allowed to occur on the barrier islands of the Eastern Shore of Virginia. I frequently hunt and fish on those islands. Fishing is extremely productive in those areas due to natural sloughs, channels, and drains created by overwash and tidal activity. This activity creates deep holes in some instances which, in my opinion, preserve water quality.

Additionally, I don't believe the cost of the emergency repair is justified by the property interests which will be protected. I don't believe that there are any significant structures as part of the Federal and State Parks system which must be protected. In addition, I believe that the repair will be ineffective in protecting interests on the western shore of the Sinepuxent Bay.

Dr. James F. Johnson
April 15, 1998
Page Two

2. I believe that the loose, wet sand which will be pumped onto Assateague Island will immediately wash into the Sinepuxent Bay further clogging an already shallow Bay. I have enclosed a portion of the Draft Integrated Feasibility Report and Environmental Impact Statement, Ocean City, Maryland, and Vicinity Water Resources Study, published by the U.S. Army Corps of Engineers, Baltimore District, in February of 1998. The report addresses the clogging of our already shallow navigational channels in this area. Although not directly set out in the report, I believe another consequence of these shallow channels is a lack of water volume in the Bay and a corresponding reduction of water quality.

The report, issued by your Department, states: "The root of the problem is the flood current transport of material through the Ocean City Inlet, carried north and south into the adjacent back bays, coupled with shoreline erosion along the oceanfront and in areas susceptible to scour in the Coastal Bays." [See attached]

The wet, loose sand which is pumped on Assateague Island will quickly erode into the ocean and the bay. The suspended sand and material will create more shoals in the Coastal Bays and clog our navigational channels.

3. Lastly, and perhaps most importantly, if it is determined that the repair is necessary, the sand should be pumped out of our Coastal Bays onto Assateague Island. In particular, the navigation channels, such as the Shantytown Channel to the Ocean City Fishing Center, should be utilized as a borrow source. It is my belief that the sand currently clogging such navigational channels as the Shantytown Channel came directly from Assateague Island during severe storms in the first place. Therefore, the most sensible approach is to put that sand back on Assateague, where it came from.

The shallowness of our channels, and attendant water quality issues, are of great concern to our Coastal Bays. This is a perfect opportunity to dredge those channels and repair Assateague Island, if necessary.

Finally, I believe that the Great Gull Shoal is a natural resource which should be protected. My great-grandfather and grandfather fished in this area at the turn of the century. They caught almost every species of fish imaginable along this shoal, and the slough between Great Gull Shoal and Little Gull Shoal. A destruction of any part of that shoal will reduce fish habitat. I don't believe the government can justify the destruction of important fish habitat for the attempted protection of Assateague Island.

Ocean City, Maryland, and Vicinity Water Resources Study

Draft Integrated Feasibility Report and Environmental Impact Statement



**US Army Corps
of Engineers**
Baltimore District

February 1998



MARYLAND DEPARTMENT OF THE ENVIRONMENT

2500 Broening Highway • Baltimore Maryland 21224
(410) 631-3000 • 1-800-633-6101 • [http:// www.mde.state.md.us](http://www.mde.state.md.us)

Parris N. Glendening
Governor

APR 16 1998

Jane T. Nishida
Secretary

Dr. James F. Johnson
Chief, Planning Division
U.S. Army Corps of Engineers
Baltimore District
P. O. box 1715
Baltimore, Maryland 21205

Dear Dr. Johnson:

Secretary Nishida has asked me to respond to the recent public notice regarding emergency repairs to the northern end of Assateague Island, which was severely eroded during a series of severe winter storms. According to the public notice, the emergency repairs will restore the low berm on the island to its pre-storm condition by dredging 320,000 cubic yards of material from the Great Gull Bank shoal and placing it on the island. The reconstructed 100-foot wide by 8,400-foot long berm will be at an elevation of 8.0 feet NGVD with 1-on-10 side slopes.

Currently, the Maryland Department of the Environment is coordinating with State resource agencies as part of its Water Quality Certification (WQC) and Coastal Zone Consistency (CZC) review. Initial comments reflect the need to avoid and minimize impacts to the Piping Plover, which was also acknowledged in the public notice. Both the WQC and CZC determination, which will be forwarded under separate cover, will address this issue, as well as any additional concerns that may be brought to the Department's attention during its review of the Emergency Response Action Plan.

Thank you for the opportunity to provide comments on this important project, which is necessary to eliminate the danger of a breach of the Island during future storms and to protect the back bay areas from additional environmental and economic damages. If you have any questions, please contact Mr. Elder Ghigiarelli, Jr., of my staff at (410) 631-8093.

Sincerely,

J. L. Hearn
Director
Water Management Administration

JLH:gts

cc: Secretary Jane T. Nishida



Parris N. Glendening
Governor

Maryland Department of Natural Resources

ENVIRONMENTAL REVIEW

Tawes State Office Building
Annapolis, Maryland 21401

April 22, 1998

John R. Griffin
Secretary

Carolyn D. Davis
Deputy Secretary

Dr. James F. Johnson
Chief, Planning Division
U.S. Army Corps of Engineers
Baltimore District
P.O. Box 1715
Baltimore, Maryland 21205

Dear Dr. Johnson:

The Maryland Department of Natural Resources has reviewed your public notice concerning Assateague Island, Public Law 84-99, Emergency Response Action, Worcester County, Maryland. Thank you for the opportunity to review the proposed emergency repairs to the northern end of Assateague Island needed as a result of several storms in early 1998.

The Department concurs with your emergency repair plans to restore the low level berm on the island to its pre-storm (mid-January 1998) condition. The only concern identified during the Department's review of this proposed action was potential impacts to Piping Plover during their nesting season. We request that in addition to the National Park Service and the U.S. Fish and Wildlife Service, the Corps coordinate with the Department's Heritage & Biodiversity Conservation Program to avoid or minimize impacts to the threatened Piping Plover during construction of the emergency plan. Your contact with our Heritage & Biodiversity Conservation Program should be Scott A. Smith, Eastern Regional Manager and Ecologist. Mr. Smith can be reached at 410-827-8612.

Again, thank you for the opportunity to review this proposed action. We look forward to coordinating with the Corps in the implementation of this emergency repair action. If you have any questions concerning these comments please call me at 410-260-8331.

Sincerely,

A handwritten signature in black ink that reads "Ray C. Dintaman, Jr." with a stylized flourish at the end.

Ray C. Dintaman, Jr., Director
Environmental Review Unit

cc: Scott A. Smith, FWHS
Gary Setzer, MDE

Bulaway
Bentley

LAW OFFICES
GORDON, FEINBLATT, ROTHMAN, HOFFBERGER & HOLLANDER, LLC
THE GARRETT BUILDING
233 EAST REDWOOD STREET
BALTIMORE, MARYLAND 21202-3332

410-576-4000

Telex 908041 BAL

Fax 410-576-4246

MICHAEL C. POWELL

410-576-4175

mpowell@gfrlaw.com

April 27, 1998

VIA TELECOPY NO. (410) 962-4698

Dr. James F. Johnson
Chief, Planning Division
United States Army Corps of Engineers
Baltimore District
Baltimore, Maryland 21205

Re: Assateague Island Emergency Response
Draft Integrated Feasibility Report and
Environmental Impact Study

Dear Dr. Johnson:

I am writing on behalf of my client, the Ocean City Fishing Center, to comment on the draft feasibility report and impact study. Although the study generally reflects a careful consideration of many of the potential impacts on Assateague Island, we believe that a correct analysis should lead the Corps to recommend federal maintenance dredging of the Shantytown channel and/or the installation of one or more of the anti-shoaling measures rejected in the draft report.

Specifically, the draft report fails to correctly assess the importance of the removal of artificially diverted sediment from the Shantytown Channel and fails to correctly analyze the costs and benefits of projects which would correct that problem. The final report should recommend the annual removal of material from the Shantytown and other back bay navigation channels in at least the amounts needed to correct the artificial diversion of sediment. The dredge spoils can then be deposited in locations on Assateague Island where the material would have naturally migrated. The report should also recommend the implementation of measures to ameliorate the shoaling of the Shantytown Channel which is caused by the artificial diversion of sediment.

Correction of Artificial Diversion of Sediment

The report concludes that the stabilization of the Ocean City Inlet in 1934 interrupted the natural flow of sedimentation towards Assateague Island. The creation of jetties to stabilize the Inlet forced the sediment to be retained north of the Inlet or diverted into the back bays and channels.

Dr. James F. Johnson

April 27, 1998

Page 2

The basic conclusion of the study is that the historic sediment deposition pattern should be artificially restored by depositing sand on Assateague Island - where it would have naturally migrated absent the creation of the Inlet.

The goal of restoring the natural processes which historically governed Assateague Island is laudatory. Unfortunately, the report fails to place an equal emphasis on the need to remove sand from the areas where it has artificially accumulated in amounts equivalent to the artificial diversion. This would require the removal, from the Shantytown Channel and the approaches to the Ocean City Fishing Center, of sediment which was artificially diverted to those locations as the result of the maintenance of the Ocean City Inlet. Those dredge spoils should be transported to Assateague Island - where the draft report indicates the material would have naturally migrated.

This is of great concern to my clients who have suffered and will continue to suffer economic losses from the shoaling of the Shantytown channel as the result of the maintenance of the inlet and sand restoration projects undertaken by the Corps. In order to more fully restore natural conditions, the report should include a recommendation that artificially increased sedimentation in navigation channels be removed in sufficient amounts to restore natural conditions to the maximum extent possible. We believe this would require the dredging of far more than the 20,000 m³/yr which alternatives seven and eight assume will be removed from navigation channels and flood shoal.

We recognize that the 20,000 m³/yr estimate is only an assumption. The draft report calls for final decisions on sand sources to be made by a "team of decision makers" led by the Corps. We also understand that the Corps, in a public meeting, committed to the removal of sand from the Shantytown channel every other year. However, the report suggests that the final determination of sand source locations and amounts will be left to a "team of decision makers." We do not believe that the Corps can legitimately or legally defer to that group the final conclusions about estimated volumes to be removed from each sand source.

Calculations of the amount of sediment to be removed from each possible source clearly have environmental and economic impacts and are required to be considered in this study and subjected to meaningful public comment.¹ As we argue elsewhere in this letter, we believe that the removal should be on an annual basis but, at a minimum, the report should confirm the commitment made in the public meeting to the removal of sand from the Shantytown channel at least every other year.

We note that at numerous places in the report (for example, pages ES-3 and 2-10) the artificial diversion of sediment into the Shantytown channel is acknowledged. However, the report

¹ Although we do not believe it will be sufficient, the report should, at a minimum, recommend that the "team" include all property owners who are currently required to maintain the navigation channels, including representatives of the Ocean City Fishing Center.

Dr. James F. Johnson

April 27, 1998

Page 3

makes no effort to quantify, even roughly, the amount of sediment transported into the channel as the result of the disruption of natural flows. This is most glaring on figure 3-4 (following page 3-14) which estimates sediment volume transportation along the Atlantic coast but fails to estimate the volumes entering the back bay. In addition, the report lacks any explanation or justification for the 20,000 m³/yr estimate for removal of sediment from navigation channels. The simple way to remedy both problems is to estimate the artificial diversion and recommend that the final determination of sand sources include the removal of at least that quantity of sand from the navigation channels.

We therefore request that the final report explicitly (1) include an estimation of the amounts of material which have been artificially diverted to the back bay navigation channels and (2) a recommendation for the removal of at least that amount of sedimentation from the navigation channels in general and the Shantytown Channel in particular on an annual basis.

Cost Benefit Analysis of Shantytown Channel Alternatives

We also believe that the report has failed to correctly analyze the costs and benefits in evaluating alternatives designed to reduce shoaling in the Shantytown channel.

First, the analysis of the Shantytown costs and benefits fails to include any analysis of the costs to my clients of private maintenance dredging of the channel. Last year that cost exceeded \$100,000. If the Corps does not dredge the Shantytown channel then my client must pay that cost each year. Clearly, the \$100,000 is either a cost avoided or a benefit gained when the Corps uses the Shantytown Channel as a sand source. We ask that the economic calculation be corrected to include this cost.

Second, the report uses incomplete factual information in calculating the economic costs of failing to institute anti-shoaling efforts because no attempt has been made to assess the economic consequences for recreational boaters and the companies which serve them. The report acknowledges that recreational use is the principal engine for the Ocean City economy but then fails to assess, in any form, the impact on recreational boating of a failure to annually dredge the Shantytown Channel. Numerous marinas (Ocean City Bayside, Hooper's, Elliott's Bayside Marina) and individual homeowners depend on the Shantytown channel as their only access to the bay and ocean. Literally hundreds of recreational boaters use the Channel. Delays in access to the channel, damages to recreational boats and loss of rental income from boaters who go elsewhere are all serious impacts to the economy and must be included in any cost / benefit analysis.

We believe that inclusion of the \$100,000 cost and estimation of losses for recreational boating would indicate that the total costs of the various items detailed in the report (pages B-32 to B-34) are far in excess of the \$88,000 assumed. A correct calculation of the costs and benefits should lead to a recommendation for implementation of one or more of the alternatives discussed on pages B-34 to B-36 of the report.

Dr. James F. Johnson

April 27, 1998

Page 4

Finally, the report considers a number of anti-shoaling alternatives for the Shantytown channel. But the report fails to consider a crucial alternative: the assumption, by the Corps, of maintenance dredging needs of the Shantytown channel. Instead, the report blithely states that such dredging by private parties will continue without accessing the costs and benefits to the public (including my client) of leaving the private sector to bare those costs. Since the cost results from Corps projects and could easily be remedied by using dredged spoils from the channel to restore Assateague Island, the failure to evaluate this alternative is, in our opinion, a glaring and legal error.

Since the report already recommends that significant quantities of sand be dredged in order to restore and maintain Assateague Island, the marginal cost of using the Shantytown Channel as an annual source of such sand should be small. We believe that if this alternative were subjected to a cost benefit analysis, the marginal cost would be far less than the benefits accrued.

We ask that the final report include a rewritten evaluation of the costs and benefits of alternatives involving the Shantytown channel which would include, at a minimum, (1) the inclusion of the costs of private maintenance dredging in the analysis, (2) complete data concerning costs resulting from the shoaling of the Shantytown channel - including costs for recreational boating, and (3) explicit analysis of an alternative that includes the assumption, by the Corps, of maintenance dredging efforts for Shantytown Channel and the approaches to the Ocean City Fishing Center.

Sincerely,



Michael C. Powell

MCP:bh

cc: Honorable Wayne T. Gilchrest
Honorable Paul Sarbanes
Honorable Barbara Mikulski
Jane Nishida, Secretary, Maryland Department of the Environment
J. L. Hearn, Director, Maryland Water Management Administration
Kristin Budzynski, Esq., Army Corps of Engineers
Katherine Will, Esq., Army Corps of Engineers



DEPARTMENT OF THE ARMY
U.S. Army Corps of Engineers
WASHINGTON, D.C. 20314-1000

REPLY TO
ATTENTION OF:

CECW-OE-OR (500-1-1a)

7 MAY 1998

MEMORANDUM FOR Commander, North Atlantic Division

SUBJECT: Request for Nourishment Project, Assateague Island, Maryland (Baltimore District)

1. Reference CENAB-CO-M memorandum, Emergency Assistance for Assateague Island and Atlantic Coast of Maryland Protection Project (Ocean City, MD), 27 Mar 98, with 1st endorsement, CENAD-ET-O, dated 10 Apr 98 (encl).

2. Based on direction received from the Acting Assistant Secretary of the Army (Civil Works), the Baltimore District request to undertake nourishment of Assateague Island is approved. Waivers for the Assateague Island work have been granted, as follows:

a. A waiver to the requirement that Advance Measures "protect against loss of life and damages to improved property from flooding." (Reference Code of Federal Regulations, Title 33, Part 203, Section 61.)

b. A waiver to the requirement that there be "an immediate threat of *unusual* flooding". (Reference 33 CFR Part 203.62, paragraph (a).)

c. A waiver to the requirement that Advance Measures work must have a "favorable benefit-to-cost ratio, under Corps of Engineers economic guidelines." (Reference 33 CFR Part 203.62, paragraph (d).)

3. Maximum efforts will be made to achieve costs savings by contracting this Assateague Island work in conjunction with work to be accomplished at the Ocean City project. Approval granted in paragraph 2. above is in the amount of \$ 3,137,600.00, less all contracting efficiencies that may be gained through combination of this work with the Ocean City work. The \$3,137,600.00 is based on the construction costs plus the standard 15 percent contingency amount for dredging operations plus the requested amounts for Supervision and Administration and Engineering and Design, minus the \$70,000 already provided for Engineering and Design activities. Baltimore District should submit an immediate request for funds needed to take the work effort up to the point of contract award.

CECW-OE-OR


SUBJECT: Request for Nourishment Project, Assateague Island, Maryland (Baltimore District)

4. Situation Reports. Baltimore District will submit bi-weekly situation reports beginning 19 May 1998, and continuing until the Assateague Island work is physically complete.

5. The point of contact for this work is Mr. Rob Grubbs, (202) 761-5090.

FOR THE COMMANDER:

Encl


RUSSELL L. FUHRMAN
Major General, USA
Director of Civil Works

CF:

Commander, Baltimore District (ATTN: CENAB-CO-M)
CECW-B (Harron)

MEMORANDUM FOR THE RECORD

SUBJECT: Meeting Minutes, Assateague Emergency Sand Placement and Piping Plover Concerns, held 21 April 1998, USFWS Office, Annapolis, Md.

ATTENDEES: See Attached List.

1. Chris Spaur stated that the meeting purpose was to discuss mitigation measures that could be undertaken to protect Piping Plover during the emergency beach replenishment project proposed to be implemented this summer. The USFWS, NPS, DNR, and Corps would like to maintain the good working relationship that has been maintained to date in planning the short and long-term Assateague Island restoration projects.

2. Scott Johnson provided an overview of the situation. Nor'easters in January and February eroded approximately 300,000 cubic yards of sand from an 8,400 ft reach along the northern end of the island, and reduced maximum island height (which occurs on the berm, a wave-built natural feature) from 8 ft to 3 ft NGVD. The Department of the Interior has requested that the Corps replace the lost sand as expeditiously as possible. There is substantial political pressure to do the project from Maryland's Senators Sarbanes and Mikulski. The Corps is seeking to respond to this request, and can accommodate a mid-July start date, but may not be able to go later. It was determined that funding to cover this project could be potentially available under PL 84-99, however funding has not been obtained at this time. The Assateague emergency project could potentially be tied-in to the Ocean City beach nourishment project for a substantial cost-savings. The Ocean City beach nourishment work is expected to be completed in June. There is a desire to implement the project prior to the next storm season during which a breach could easily occur. Hurricane season begins in June and extends at least into September. Risks of a hurricane strike are low, however. Instead, Nor'easters are a greater risk. These storms occur beginning in the fall, and continue through spring.

Scott said that some natural recovery has occurred since the storm. In the 2 ½ months that have elapsed, onshore transport has moved approximately 150,000 cubic yards of sand onto the island, reducing the volume that would need to be replaced. Carl Zimmerman stated that recovery has progressed from north to south, with the north recovering more than the south. The island is still very low in elevation, however, and is still overwashed during spring high tides. Chris Spaur noted that fair weather of late spring through summer typically brings sand onshore to the beach, and continued recovery could be reasonably forecast.

Scott and Greg Bass said that the project would include dredging approximately 150,000 cubic yards of sand from Great Gull Bank, transporting it by ship to Assateague, pumping it from the dredge onto the island, and shaping the sand with a bulldozer(s) to form a berm that approximates the pre-storm condition of the island. The berm would lie within the proposed short-term restoration footprint [contained within the May 1997 Assateague Draft EIS], and be 8,400 feet long and be approximately 245 feet wide. The project should be completed within 3 weeks and work would probably be done round the clock. Mobilization will take 1 to 2 weeks prior to pumping of sand. Harold Nelson said that it won't be possible to specify the exact date that pumping will begin.

3. Andy Moser, Carl, and Dave Brinker provided an overview of specific concerns for Piping Plover. Because of the low elevation of the project area, it is expected that it will not be utilized for nesting purposes, since nests would be vulnerable to destruction by flooding. It is possible, however that nests could be present. Information will become available within the next several weeks on whether birds are nesting in the proposed project area. Plover will establish nests and lay eggs for the next couple of months. By mid-July all young should have hatched, but large numbers of foraging young could be present. Andy indicated that July 15th was the earliest start date that could avoid severe adverse effects on plovers (with appropriate mitigation measures) and that August 1st would be even more preferable. Harold said that if a nest(s) are located in the project areas that we would need to hold additional meetings to figure out how to deal with it.

Instead, it is expected that the proposed project area will be in use by plover as a foraging ground. By the end of June information should be available to determine whether or not this forecast holds true. Plover broods preferentially forage in moist low areas on the island where invertebrate prey are abundant. These low areas occur on the bayside and interior of the island. Oceanside foraging areas are of less importance for chicks. Since this year's Nor'easters lowered the elevation of much of the northern end of the island it is expected that high quality foraging areas will cover a large proportion of the island, and access to foraging habitat will not be as great a concern as it would otherwise be. Plover young are able to walk shortly after hatching. When plover young encounter predators they typically run and squat in depressions to hide. This behavior makes them vulnerable to being crushed by vehicles since the birds will hide in tire ruts - this is a primary concern. Last year the number of flightless chicks was greatest on about July 15th, however there was substantial late-season re-nesting (because of storms), and this could be viewed as a worse-case scenario. By August 1st 90% of chicks should be able to fly. The risk of detrimental impacts to plovers therefore decreases substantially with every week that the project could be delayed at this time of the summer. Noise disturbance is not a concern for foraging birds in this case.

4. Potential construction mitigation methods were discussed. Andy mentioned that a 100 m buffer system around nests and foraging areas such as has been done in Long Island would perhaps be appropriate. The buffer for nests might need to extend in a strip from the bay to ocean shoreline. Carl said that buffers won't work and allow the project to occur in this case. Andy stated that this was the type of buffer he and Anne Hecht (USFWS Piping Plover recovery coordinator) intended to recommend, but if this could not be accommodated, USFWS would need to discuss among themselves whether there were any other measures which could make the July 15th start date acceptable.

Carl suggested that instead of buffers, since the area is forecast to be used only for foraging, and foraging habitat is forecast to be abundant and it can be assumed that loss of the project area as a foraging ground is relatively unimportant, then the best protection for plover would be to keep young flightless birds out of the construction area. Flightless young birds could be chased out of an area and then a fence could be erected. If the loss of this much foraging habitat all at one time is considered to be unacceptable, perhaps sections of the project area could be fenced sequentially. Then construction could occur within the fenced areas. Greg and Bob said that if work is done in sections it would be necessary to proceed in a linear fashion proceeding either from north to south or from south to north. Dave and Carl suggested that proceeding from south to north would probably be best, since nests are concentrated to the north of the site and birds would come from that direction to forage. Nesting success immediately south of the proposed project area has been poor. Andy indicated that because of the significant changes in island elevations this year, we cannot be sure to what extent plover nesting and foraging will follow

previous years' patterns. We'll know most nest locations and have some good information on foraging patterns by mid to late June. Once the project is completed it is expected that the value of the area as a foraging ground will be essentially lost since, except in the intertidal zone, the elevation will be substantially increased and favored prey species of plover will be lost.

5. Concerns were raised by Carl, Andy, and Dave over transportation to and from the construction site. Carl said that park vehicles transit the area during plover season by driving on the beach below the MHW line. Dave said that the same policy could potentially be followed for the emergency project if plover monitors accompany the construction vehicles. Carl Zimmerman said that it would be desirable to keep traffic to a minimum.

7. Plover monitoring was discussed. Scott said that the Corps would have 24 hours/day coverage by inspectors because of the sensitivity of the project. Carl suggested transferring funds to the NPS to allow them to hire a monitor for this project since NPS has expertise in this area and has contacts of potential staff. Scott said that the funding transfer might be problematic, but Harold favored finding a way to do this. Carl and Dave believed that one plover monitor working ~ 8 hours/day would be adequate for the project, provided that the number of trips to and from the site is minimal, since the plover monitor would need to accompany vehicles travelling to and from the site.

8. Several critical issues were identified for the Corps to clarify. These include activities within and outside of a fenced construction site, including staging areas, access routes to and from the site, method of pipeline transport to the site, numbers of vehicles, frequencies of trips, and vehicle fueling. Carl and Dave advocated that to the degree possible it would be beneficial to transport equipment to the site by barge from the ocean side. Bringing equipment in from the bay side by water would be problematic because of greater likelihood of plover impacts - it's closed to public use.

9. Andy said that the USFWS would expedite Section 7 Consultation (Endangered Species Act process). The Corps will need to prepare a Biological Assessment so that the USFWS can prepare a Biological Opinion, but the assessment need not be as comprehensive as the previous Biological Assessments prepared for the long and short-term projects.

10. Please forward any comments on these minutes to Chris Spaur by e-mail.

Christopher C. Spaur

Addendum: Comments were received from Andy Moser via e-mail on 5/11/98 and were incorporated into this text.

Meeting Attendees

Name	Organization	Phone Number (all 410)
Greg Bass	US ACE	962-6760
Bob Blama	US ACE	962-6068
Dave Brinker	MD DNR	744-8939
Kathy Ellet	MD DNR	260-8730

Scott Johnson	US ACE	962-3455
Andy Moser	US FWS	573-4537
Harold Nelson	US ACE	962-4902
George Ruddy	US FWS	573-4528
Chris Spaur	U.S. ACE	962-6134
Stacey Underwood	U.S. ACE	962-4977
Carl Zimmerman	NPS	641-1443 ext 213